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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

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Vol. 24 January 10, 1932 No. 1
Personnel (Dec.16-Jan.10) and Field Station (Dec.1 - 31) Issue

PERSONNEL ITEMS

Dr. Allam D. Dickson, of Madison, Wis., while in Washington over the Christmas holidays, cooperated in the preparation of a joint manuscript with Dr. A. M. Hurd-Karrer.

VISITORS

Dr. P. D. Peterson, formerly assistant pathologist in the virus-disease project, spent part of the holidays at the Arlington Experiment Farm conferring on cooperative manuscripts.

MANUSCRIPTS AND PUBLICATIONS

75 A manuscript entitled "The Effect of Delayed Planting on the Control of Bunt by Copper-Carbonate Dust," by H. H. Flor, was approved on December 14 for submittal to Phytopathology.

76 A manuscript entitled "The Production of Bunt Chlamydospores in the Vegetative Tissue of the Wheat Plant," by H. H. Flor, was approved on December 14 for submittal to Phytopathology.

77 A manuscript entitled "Root, Crown, and Shoot Rot of Milo," by Charlotte Elliott, F. A. Wagner, and L. E. Melchers, was approved on December 15 for submittal to Phytopathology.

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1 A manuscript entitled "Ophiobolus oryzinus Sacc., the Cause of a Disease of Rice in Arkansas," by E. C. Tullis, was submitted on January 6 for publication in the Journal of Agricultural Research.

2 A manuscript entitled "Factors Affecting Infection of Wheat Heads by Gibberella saubinetii (Mont.) Sacc.," by Grace Wineland Pugh, Helen Johann, and J. G. Dickson, was submitted on January 7 for publication in the Journal of Agricultural Research.

The article entitled "The Origin of Hooded Barley," by Harry V. Harlan, appears in The Journal of Heredity 22(9): 265-272, figs. 1-4 and frontispiece. September, 1931. (Received December 15, 1931)

The article entitled "Further Studies on Penicillium Injury to Corn," by Helen Johann, James R. Holbert, and James G. Dickson, appears in the Journal of Agricultural Research 43(9): 757-790, pls. 1-2, figs. 1-17. November 1, 1931. (Cooperative investigations between the Division of Cereal Crops and Diseases and Wisconsin Agricultural Experiment Station and Funk Bros. Seed Co., Bloomington, Ill.)

The article entitled "Registration of Improved Wheat Varieties, VI", by J. Allen Clark, appears in the Journal of the American Society of Agronomy 23(12): 1010-1012. December, 1931.

The article entitled "Registration of Varieties and Strains of Oats, V", by T. R. Stanton, appears in the Journal of the American Society of Agronomy 23(12): 1013-1017. December, 1931.

The article entitled "Sterility in Rice Hybrids," by Jenkin W. Jones, published in The Journal of the American Society of Agronomy 22(10): 861-867, October, 1930, appears as a reprint under the head Selected Article in The Indian Journal of Agricultural Science Vol. I, Part 1, pp. 137-144. February, 1931.

566322

AMERICAN SOCIETY OF AGRONOMY

Officers, 1931-32

President. Dr. P. E. Brown, Iowa State College, Ames, Iowa.

First Vice President. Dr. S. A. Waksman, Agricultural Experiment Station, New Brunswick, N. J.

Second Vice President. Prof. George Stewart, U. S. Forest Service, Ogden, Utah.

Third Vice President. R. I. Throckmorton, Kansas State Agricultural College, Manhattan, Kans.

Fourth Vice President. Mr. M. A. McCall, Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.

Secretary-Treasurer. Dr. F. B. Smith, Iowa State College, Ames, Iowa.

Editor. Prof. J. D. Luckett, Agricultural Experiment Station, Geneva, N. Y.

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The following were elected Fellows of the American Society of Agronomy at the meeting held in Chicago in November, 1931:

Dean W. W. Burr, University of Nebraska, Lincoln, Nebr.
Mr. M. A. McCall, Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.
Mr. C. F. Shaw, University of California, Berkeley, Calif.
Mr. F. D. Gardner, Pennsylvania State College, State College, Pa.
Dr. W. H. Stevenson, Iowa State College, Ames, Iowa.

ORGANIZATION OF THE DIVISION OF CEREAL CROPS AND DISEASES

January 1, 1932

Max A. McCall, M. S., Principal Agronomist in Charge.

CEREAL CROPS

(1) Wheat Investigations

S. Cecil Salmon, M. S., Prin. Agron. In charge wheat and rye investigations.
J. Allen Clark, M. S., Sr. Agron. Spring wheat.
Karl S. Quisenberry, Ph. D., Agron. Hard red winter wheat. Buckwheat.
Wm. J. Sando, M. S., Assoc. Agron. Breeding, species hybrids, cytoloty, physiology.
Burton B. Bayles, M. S., Assoc. Agron. Wheat in western region. Wheat physiology.
Colburn C. Fifield, B. A., Assoc. Bak. Tech. Milling and baking.
Donald J. Martin, B. S., Jr. Agron. Milling and baking.
Sidney R. Snider, B. S., Jr. Chem. Milling and baking.
Philip Talbott, Sr. Sci. Aid. Milling and baking.
Clarence C. Colcord, Sci. Aid. Wheat agronomy.

(2) Oat Investigations

T. Ray Stanton, M. S., Sr. Agron. In charge.
Franklin A. Coffman, M. S., Assoc. Agron.

(3) Barley Investigations

Harry V. Harlan, D. Sc., Prin. Agron. In charge.
Merritt N. Pope, Ph. D., Agron.
Mary L. Martini, B. S., Asst. Bot.
Lucille Reinbach, B. A., Jr. Agr. Stat.

(4) Rice Production and Improvement

Jenkin W. Jones, M. S., Sr. Agron. In charge.

(5) Rice Technology (and wild rice)

Charles E. Chambliss, M. S., Assoc. Agron. In charge.

(6) Corn Investigations

Frederick D. Richey, B. S., Prin. Agron. In charge.
Curtis H. Kyle, B. S., Sr. Agron. Corn in Southern States.
George F. Sprague, Ph. D., Asst. Agron. (Arlington Farm)

(7) Grain Sorghum and Broomcorn Investigations (and proso investigations)

John H. Martin, Ph. D., Sr. Agron. In charge.

(8) Seed Flax Investigations

Arthur C. Dillman, M. S., Assoc. Agron. In charge.

CEREAL DISEASES

Aaron G. Johnson, Ph. D., Prin. Path. In charge.

(1) Sac and Imperfect Fungi Investigations
Aaron G. Johnson, Ph. D., Prin. Path. In charge.

(2) Cereal Rust Investigations
Harry B. Humphrey, Ph. D., Prin. Path. In charge.

(3) Cereal Smut Investigations
James A. Faris, Ph. D., Sr. Path. In charge.
Herman A. Rodenhiser, Ph. D., Path. (physiologic specialization in smuts)(genetics of smuts)

(4) Cereal Bacteria Investigations (and milo root and stalk disease)
Charlotte Elliott, Ph. D., Assoc. Path.

(5) Cereal Pathologic Physiology
Annie M. Hurd-Karrer (Mrs.), Ph. D., Assoc. Physiol.
(plant acidity, photoperiodism, selenium in plants)

ADMINISTRATIVE

Hugh S. Smith, Head Clerk.
Anna H. B. Kinney (Mrs.) Editor and Librarian.
Elizabeth C. Lambert, Accounts.
Charles F. Heasty. Property and Supplies.
Eva P. LeFever (Mrs.) Mail and Files.

FIELD STATIONS

[Names starred (*) are part-time employees. Where two or more individuals are engaged on the same project at a station, a figure (1) is placed opposite the name of the one in charge; if engaged in different projects at the same station each is assumed to be in charge of his own project.]

Arlington Experiment Farm - Rosslyn, Va.
John W. Taylor, M. S., Assoc. Agron. (Cereal prod. and improvement; wheat, oats, barley, rye)
Harold H. McKinney, M. S., Sr. Path. (Virus diseases and wheat physiology.)
Victor F. Tapke, Ph. D., Path.(loose smuts)
Robert W. Leukel, M. S., Assoc. Path. (Wheat nematode, seed treatments, smuts, soil temperature control)
Walter Marcey, Head gardener (Virus diseases)
Fred Young, Asst. Sci. Aid. (Cereal diseases)
Horace V. Wester, Jr., Sci. Aid (Cereal smuts)
Thomas B. Meyer, B. A., Farm laborer (wheat)
Frank V. Stevenson, Farm laborer (oats)

Tucson, Ariz. - Agr. Exp. Sta.
Arthur T. Bartel, M. S., Jr. Agron.(cereal prod. and improvement; wheat, grain sorghums, barley, oats).

Fayetteville, Ark. - Agr. Exp. Sta.
Edgar C. Tullis, Ph. D., Agt. (rice diseases). (1)
Elza M. Cralley*, Ph. D., Agt. (rice diseases).

Stuttgart, Ark. - Rice Branch Exp. Sta.
Charles Roy Adair, B. S., Jr. Agron. (rice breeding; oats).

Berkeley, Calif. - Agr. Exp. Sta.
Ruth F. Allen, Ph. D., Path. (cytology of rusts).

Biggs, Calif. - Biggs Rice Field Sta.
Loren L. Davis, M. S., Asst. Agron. and Supt. (rice prod. and improvement).

Davis, Calif. - Agr. Exp. Sta.
Gustav. A. Wiebe, M. S., Asst. Agron. (cereal prod. and improvement; wheat, barley, oats).

Akron, Colo. - United States Dry-Land Field Sta.
John J. Curtis, B. S., Jr. Agron. (cereal prod. and improvement; wheat, oats, barley, grain sorghums, proso, corn).

Athens, Ga. - State College of Agriculture
Ross R. Childs*, M. S., Agt. (cereal prod. and improvement; wheat, oats, barley, rye).

Tifton, Ga. - Coastal Plain Exp. Sta.
Harry S. Garrison, B. S., Asst. Agron. (corn inv.; oats).

Aberdeen, Idaho - Aberdeen, Substa.
Harland Stevens, B. S., Agt. (cereal prod. and improvement; barley, oats, wheat).

Moscow, Idaho - Agr. Exp. Sta.
Victor H. Florell, Ph. D., Assoc. Agron. (cereal prod. and improvement; wheat, barley, oats; cytology).
Wayne M. Bever, M. S., Jr. Path. (stripe rust). (1)
J. Milford Raeder*, M. S., Agt. (stripe rust).

Bloomington, Ill. - Funk Bros. Seed Co.
James R. Holbert, Ph. D., Sr. Agron. (corn root-rot, stalk-rot, and ear-rot diseases; corn breeding and physiology). (1)
Boyd C. Frye, Asst. Sci. Aid (corn root-rot, stalk-rot, and ear-rot diseases).

LaFayette, Ind. - Agr. Exp. Sta.
John F. Trost, M. S., Assoc. Path. (corn root-rot, stalk-rot, and ear-rot diseases; sweet-corn diseases). (1)

Ralph R. St. John, M. S., Assoc. Agron. (corn root-rot, stalk-rot, and ear-rot diseases; corn breeding).

Glenn M. Smith, M. S., Asst. Path. (sweet-corn diseases).
Roy A. Weaver*, B. S., Agt. (chemical studies of corn diseases).
Ralph M. Caldwell, Ph. D., Assoc. Path. (leaf rust).(1)
Leroy E. Compton, M. S., Asst. Path. (leaf rust).

Ames, Iowa - Agr. Exp. Sta.

Merle T. Jenkins, Ph. D., Assoc. Agron.(corn inv.). (1)
Arthur A. Bryan, M. S., Assoc. Agron.(corn inv.).
Hickman C. Murphy, Ph. D., Asst. Path. (oat crown rust).
Lyman C. Burnett*, M. S., Agt. (cereal prod. and improvement; oats, wheat)
R. W. Jugenheimer, Agt. (corn inv.).

Hays, Kans.-Fort Hays Branch Sta.

Arthur F. Swanson, M.S., Assoc. Agron. (in charge cereal prod. and improvement; wheat, grain sorghums, broom-corn, barley, oats, corn)
Robert Hunter, Agt. (cereal prod. and improvement).

Manhattan, Kans. - Agr. Exp. Sta.

Arthur M. Brunson, Ph. D., Agron.(corn inv.; pop corn).(1)
Carl W. Bower, M. S., Asst. Agron. (corn inv.).
John H. Parker*1/, Ph. D., Agron. (cereal breeding; wheat, grain sorghums, barley, oats).
W. H. Von Trebra*, B. S., Agt. (cereal breeding).
Leo E. Melchers*, M. S., Agt. (sorghum smuts).
Hurley Fellows, Ph. D., Assoc. Path. (wheat foot rots).(1)
Lytton W. Boyle, M. S., Asst. Path. (wheat foot rots).
Christian H. Ficke, M. S., Jr. Path. (wheat foot rots).
Charles O. Johnson, M. S., Assoc. Path. (leaf rusts)

Baton Rouge, La. - Agr. Exp. Sta.

Hugo Stoneberg, M. S., Asst. Agron. (corn inv.).

Crowley, La. - Rice Exp. Sta.

J. Mitchell Jenkins*, B. S., Assoc. Agron. and Supt. (rice prod. and improvement).

St. Paul, Minn. (University Farm) - Agr. Exp. Sta.

Moses M. Levine, Ph. D., Path. (stem rust, physiologic forms, uniform rust nurseries).
Helen Hart*, Ph. D., Agt. (stem rust).
Elmer R. Ausemus, M. S., Assoc. Agron. (wheat-breeding nursery).
Rayburn H. Bamberg, M. S. Agt. (cereal diseases)
Herbert K. Hayes*, Sc. D., Collab. (wheat breeding)
Clyde C. Allison*, M. S., Agt. (flax rust).

Columbia, Mo. - Agr. Exp. Sta.

Lewis J. Stadler*, Ph. D., Sr. Geneticist. (corn inv.).

1/ On leave.

Elsberry, Mo. (P. O. address Agr. Exp. Sta., Columbia, Mo.)
Bascom M. King*, A. M., Agt. (rice prod. and improvement).

Moccasin, Mont. - Judith Basin Substa.
Joe L. Sutherland, M. S., Jr. Agron. (cereal prod. and improvement; wheat, oats, barley, flax).

Lincoln, Nebr. - Agr. Exp. Sta.
Coit A. Suneson, M. S., Jr. Agron. (wheat prod. and improvement).
Virgil H. Welch*, Agt. (corn inv.).

North Platte, Nebr., - North Platte Substa.
Nelson E. Jodon, B. S., Jr. Agron. (cereal prod. and improvement; corn, wheat, oats, barley, grain sorghums).

Ithaca, N. Y. - Cornell Univ. Agr. Exp. Sta.
Lowell F. Randolph, Ph. D., Assoc. Cytol. (cytology, histology, and morphology of corn).
William T. Craig*, Agt. (cereal prod. and improvement; wheat, oats, barley).
Ernest Dorsey*, Ph. D., Agt. (cytology of cereals).

Dickinson, N. Dak. - Dickinson Substa.
Ralph W. Smith, M. S., Assoc. Agron. (cereal prod. and improvement; wheat, oats, barley, flax, corn, rye, proso).

Fargo, N. Dak., (State College Station) - Agr. Exp. Sta.
Harold H. Flor, Ph. D., Assoc. Path. (flax diseases).(1)
H. L. Bolley, M. S., Agt. (flax introductions; flax diseases).

Langdon, N. Dak. - Langdon Substa.
Glenn S. Smith, M. S., Jr. Agron. (cereal prod. and improvement; wheat, oats, barley, proso).

Mandan, N. Dak. - Northern Great Plains Field Sta.
John C. Brinsmade, Jr., A. B., Asst. Agron. (flax inv.).
Vincent C. Hubbard, M. A., Jr. Agron. (cereal prod. and improvement; wheat, oats, barley).

Wooster, Ohio - Agr. Exp. Sta.
Jasper D. Sayre, Ph. D., Physiol. (corn physiology).(1)
John S. Cutler*, M. S., Agt. (corn inv. outlying stations).
Vincent H. Morris*, Ph. D., Agt. (physiology and biochemistry of corn).
Glen H. Stringfield, M. S., Agt. (corn inv.).(1)

Woodward, Okla. - Southern Great Plains Field Sta.
John B. Sieglinger, M. S., Agron. (grain sorghums and broomcorn).
Edmund Stephens, M. S., Jr. Agron. (cereal prod. and improvement; wheat, barley).

Corvallis, Oreg.- Agr. Exp. Sta.
Roderick Sprague, Ph. D., Asst. Path. (wheat foot rots).

Moro, Oreg. - Sherman County Branch Sta.
David E. Stephens*, B. S., Sr. Agron. and Supt. (cereal prod. and improvement; tillage and rotations; wheat, barley, oats).(1)
Robert B. Webb, B. S., Jr. Agron. (cereal prod. and improvement).
Robert B. Hoskinson, Sr. Sci. Aid (cereal prod. and improvement).

Pendleton, Oreg. - Pendleton Field Sta.
J. Foster Martin, M. S., Jr. Agron. (cereal prod. and improvement; wheat, barley, oats).

Redfield, S. Dak. - U. S. Field Sta.
Edgar S. McFadden, B. S., Assoc. Agron. (cereal prod. and improvement; wheat, oats, barley, proso).

Knoxville, Tenn. - Agr. Exp. Sta.
Ludwig S. Mayer, M. S. Asst. Agron. (corn inv.).

Beaumont, Tex. - Substation No. 4
Henry M. Beachell, B. S., Agt. (rice breeding).

Denton, Tex. - Substation No. 6
Irvin M. Atkins, B. S., Jr. Agron. (cereal prod and improvement; wheat, oats).

Logan, Utah - Agr. Exp. Sta.
Rollo W. Woodward, M. S., Jr. Agron. (cereal prod. and improvement; wheat, oats, barley, corn, grain sorghums).

Pullman, Wash. - Agr. Exp. Sta.
Edward F. Gaines*, Sc. D., Agt. (cereal smuts and breeding for smut resistance).
C. S. Holton, M. S., Asst. Path. (cereal smuts).
Orville A. Vogel, M. S., Agt. (wheat prod. and improvement).

Madison, Wis. - Agr. Exp. Sta.
James G. Dickson*, Ph. D., Agt. (wheat and barley scab; corn rots).(1)
Allan D. Dickson, Ph. D., Agt. (barley scab).
Paul E. Hoppe, B. S., Assoc. Path.(barley scab and corn rots).
Ruebush G. Shands, Ph. D., Agt. (barley scab).
Helen Johann, A. M., Assoc. Path. (wheat scab).
Chester Barlow, Asst. Sci. Aid (wheat scab).

COOPERATIVE CEREAL EXPERIMENTS SUPERVISED LOCALLY BY MEN NOT EMPLOYED BY THE DIVISION OF CEREAL CROPS AND DISEASES

(Excluding small cooperative disease and breeding nurseries and farmers' trials)

Eager, Ariz. - A. T. Bartel, Tucson, Ariz. (wheat)
Mesa, Ariz. - Salt River Valley Exp. Farm (C. J. Wood)
A. T. Bartel, Tucson, Ariz. (wheat)
Sacaton, Ariz. - U. S. Field Station.
C. J. King (barley, wheat, grain sorghums)
Hesperus, Colo. - Fort Lewis Substation.
D. W. Koonce (wheat)
Felt, Idaho - High Altitude Station.
W. A. Moss (wheat)
Sandpoint, Idaho - Sandpoint Substation (wheat)
Urbana, Ill. - Agr. Exp. Station.
J. R. Holbert, Bloomington, Ill. (corn physiology)
Colby, Kans. - Colby Exp. Station
E. H. Coles (wheat)
Crookston, Minn. - N. W. Exp. Station.
R. S. Dunham (wheat)
Morris, Minn. - West Central Exp. Station.
R. O. Bridgford (wheat)
St. Paul, Minn. - Agr. Expt. Station.
A. C. Arny (flax)
Waseca, Minn. - S. E. Exp. Station.
R. E. Hodgson (wheat)
Bozeman, Mont. Agr. Exp. Station.
A. G. Goth (wheat, flax)
Havre, Mont. - Northern Mont. Substation.
M. A. Bell (wheat, flax)
Huntley, Mont. - Huntley Substation.
Dan Hansen. (wheat)
Alliance, Nebr. - Box Butte Exp. Farm.
C. A. Suneson, Lincoln, Nebr. (wheat)
Tucumcari, N. Mex. - U. S. Field Station.
D. R. Burnham (grain sorghum and broomcorn)
Edgeley, N. Dak. - Edgeley Substation.
O. A. Thompson (wheat)
Hettinger, N. Dak. - Hettinger Substation.
C. H. Plath (wheat)
Williston, N. Dak. - Williston Substation.
E. G. Schollander (wheat)
Columbus, Ohio - Agr. Exp. Station
G. H. Stringfield, Wooster, Ohio (corn breeding)
Oak Harbor, Ohio
G. H. Stringfield, Wooster, Ohio. (corn borer agronomic experiments)
Carrier, Okla.
C. B. Cross, Stillwater, Okla. (wheat)
Goodwell, Okla. - Panhandle A. & M. College.
H. H. Finnell (wheat)

Lawton, Okla. - U. S. Field Station.
W. M. Osborn (wheat, oats, barley, grain sorghum)
Stillwater, Okla. - Agr. Exp. Station.
C. B. Cross (wheat
Burns, Oreg. - Harney County Branch St.
Obil Shattuck (wheat)
Corvallis, Oreg. Agr. Exp. Station.
D. D. Hill (wheat)
Union, Oreg. - Eastern Oreg. Branch Station.
D. E. Stephens (wheat)
Florence, S. Caro. - Pee Dee Exp. Station.
R. E. Currin (corn testing and breeding)
Ardmore, S. Dak. - U. S. Field Station.
O. R. Mathews (wheat)
Brookings, S. Dak. - Agr. Exp. Station.
K. H. Klages (wheat)
Eureka, S. Dak. - Eureka Substation.
Walter Schonbrod (wheat)
Highmore, S. Dak. - Highmore Substation.
S. W. Sussex (wheat)
Newell, S. Dak. - U. S. Exp. Farm.
Beyer Aune (wheat)
Amarillo, Tex. - Price Memorial College,
I. M. Atkins, Denton, Tex. (wheat)
Big Spring, Tex. - U. S. Field Station.
F. E. Keating (grain sorghum and broomcorn)
Dalhart, Tex. - U. S. Field Station.
B. F. Barnes (grain sorghum and broomcorn)
San Antonio, Tex. - U. S. Field Station.
G. T. Ratliffe (flax, grain sorghum)
Nephi, Utah - Nephi Dry-Farm Substation.
A. F. Bracken (wheat)
Lind, Wash. - Adams Branch Exp. Station.
H. M. Wanser (wheat)
Prosser, Wash. - Irrigation Branch Exp. Station.
H. P. Singleton (wheat)
Cheyenne, Wyo. - Cheyenne Exp. Farm
A. L. Nelson (wheat)
Sheridan, Wyo. - U. S. Field Station.
R. S. Towle (wheat, oats, barley, flax)

THE TRAINING OF THE STAFF OF THE DIVISION OF CEREAL CROPS AND DISEASES

The technical staff of the Division of Cereal Crops and Diseases numbers 126 individuals of whom 113 are professional employees and 13 are subprofessional workers. Of the 113 on the professional staff, 93 are full-time employees of the Division and 20 are employed jointly with cooperators.

The degrees held by the professional employees are shown in the accompanying table in comparison with the Bureau of Plant Industry as a whole, and also with the Bureaus of Chemistry and Soils, and Agricultural Economics, the other two large bureaus devoted chiefly to investigational work. The figures for each bureau were reported on page 263 of the Official Record of August 29, 1931.

Percentage of Professional Employees Holding Academic Degrees

Organization	No. of Employees	No degree	Bachelors degree	Masters degree	Doctors degree	Other degrees (Honorary doctorate or M.D.)
		(Per cent)	(Per cent)	(Per cent)	(Per cent)	
Cereal Crops and Diseases	113	0.9	22.1	45.1	31.9	0
Bureau of Plant Industry	524	4.1	36.2	32.6	24.0	2.8
Bureau of Chemistry and Soils	303	3.9	45.5	25.1	23.4	1.9
Bureau of Agricultural Economics	276	13.4	43.1	31.1	11.2	1.0

Seventy-seven per cent of the employees of the Division have advanced degrees, a proportion considerably greater than the percentages of 57, 49, and 42, respectively, of all employees in the Bureaus of Plant Industry, Chemistry and Soils, and Agricultural Economics. This high proportion of advanced training in turn obligates employees to conduct high quality research.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

HUMID ATLANTIC COAST AREA (South to North)

GEORGIA

Coastal Plain Experiment Station, Tifton (Corn Breeding, H. S. Garrison) (Jan. 2)

December rains brought up the fall-sown cereals and winter green-manure crops. Eighty per cent of the oats in the winter-hardiness nursery have germinated. No killing frost has occurred so far this season.

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs) (Dec. 11.)

Most of the small grain is up to a fair stand but is much later than usual. Grain sown about October 15 came up to a partial stand within 10 days, but owing to the exceedingly dry weather the remainder of the seed lay in the ground and did not germinate until after the rains on November 19. This made the growth somewhat uneven but unless there is severe weather in the near future it probably will get along very well.

HUMID MISSISSIPPI VALLEY AREA. (South to North)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins) (Jan. 4)

The weather in December was rather extreme. The total precipitation was 10.42 inches, recorded on 16 days. Only twice before at this Station has the precipitation recorded for December been greater than it was this month.

The maximum temperature for the month was 80° and 70° or above was recorded on 15 days. The minimum temperature was 41°.

On account of the wet weather very little field work was done. A few farmers were able to plow land that was in pasture last season.

Work on the Station was confined mostly to general repairs on buildings and grounds.

The general financial depression is at last having its effect in the rice section. There is very little demand for rice. In the main, farmers are holding, hoping for an advance in price after the holidays. This lack of movement of the rice has caused much distress and has resulted in many banks failing or having to reorganize.

Among the Station visitors were: J. W. Batemen, director, and R. V. St. Dizier, district agent, Extension Division, Louisiana State University; H. H. Laude, associate professor of agronomy, Kansas State Agricultural College; H. N. Van Dijk and J. Boonacher of Holland.

OHIO

Agricultural Experiment Station, Wooster (Corn Investigations, G. H. Stringfield) (Dec. 31)

One of the largest crops on record in Ohio was harvested the past season. There were both large acreages and high acre yields. The drought of 1930 lasted until about planting time in 1931, but since then precipitation has been ample for the most part.

High nitrate accumulations in the soil at the beginning of the growing season caused crops to start off with unusual rapidity. Serious lodging followed in all cereal crops. However, this condition has been valuable in corn-breeding operations. Marked and consistent differences in lodging appeared. An encouraging feature was the small amount of lodging in many of the newer hybrids compared with open-pollinated varieties.

The summer weather was quite favorable to the European corn borer. Larvae are present in greater numbers than they were at a corresponding date in any past season, particularly in northwestern Ohio.

ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert) (Jan. 2)

A visit was made to Madison, Wis., on December 17 to confer with Dr. James G. Dickson and his associates regarding manuscripts in process of preparation and to discuss greenhouse and chemical studies.

An extensive series of corn plantings has been made in the controlled-temperature tanks at the University of Illinois to continue the cooperative cold-injury studies.

On December 29 a new portable work table was installed in the agronomy greenhouse at the University. This table consists of a desk with cover for the semiprecision potentiometer; a tilting table top covered with cork linoleum for attaching large forms on which to record data, telephone connections to field refrigeration chambers; a switchboard for potentiometer circuits to freezing chambers, prehardening chamber, and field refrigeration chambers, as well as to the calorimeter; and an improved reference junction. This piece of "home-made" equipment embodies several other new features that are designed to facilitate operations in connection with the cooperative cold-injury studies. During the spring, summer, and fall, this portable work table will be moved to the field laboratory.

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson) (Dec. 31)

Mr. C. B. Dickey, of the Pittsburgh Plate Glass Co., Milwaukee, Wis., was an office visitor on December 11.

Dr. J. R. Holbert, of Bloomington, Ill., arrived at Madison on December 17, bringing with him a large quantity of corn. He spent two days in conferences and in going over manuscripts.

Dr. Norma L. Pearson, a former coworker at the Madison Laboratory, was a visitor on December 28.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (H. K. Wilson) (Jan. 4)

The results obtained from the varietal experiments with spring wheat at St. Paul, Waseca, Morris, and Crookston, Minn., in 1931 are presented in the following tables. All of the plots were sown at random in 1931 and probable errors were computed by Fisher's variance method. These percentages are comparable with those obtained in past years by the deviation from the mean method.

A few strains were grown in single plots. These were at the end of the series in each case and were not used in the probable-error computations. No stem rust developed at St. Paul but heat and drought caused premature ripening, reducing the yields and test weights per bushel.

Class and Variety	C.I.No.	Minn.No.	Yield (Bu. per acre)	Test Weight (Lbs.)
Hard Red Spring:				
Reward	8182	2204	22.0	57.2
Supreme	8026	2309	21.6	53.7
Double Cross,[a] II-21-81	----	2338	20.8	52.6
Marquis x Kota,1656.85	8385	2298	20.0	53.0
Double Cross,II-21-94	----	2340	19.1	53.8
Double Cross,II-21-28	10003	2303	18.9	50.6
Double Cross,II-21-92	----	2339	18.6	53.6
Hope	8178	2297	18.5	53.2
Ceres	6900	2223	18.4	53.5
Double Cross,II-21-47	10005	2305	18.2	54.7
Marquis	3641	1239	18.2	53.2
Double Cross,II-21-7	10002	2302	18.0	54.9
Marquis x Kota, 1656	6898	2224	18.0	54.2
Double Cross,II-21-84	10021	2316	17.5	52.5
Reliance	7370	2308	17.3	54.9
Double Cross,II-21-42	10004	2304	17.1	51.9
Marquillo	6887	2202	16.8	50.5
Marquis x Kota,1656.48	10014	2317	16.7	53.4
Haynes Bluestem	2874	169	15.7	52.0
H-44	8177	2301	15.4	50.5
Double Cross,II-21-48	10020	2315	15.4	50.7
Double Cross,II-21-91[b]	2341	----	17.7	----
Double Cross,II-21-93[b]	2342	----	17.5	----
Marquillo x Red Bobs, II-22-28[b]	2343	----	16.8	----
Marquillo x Red Bobs, II-22-30[b]	2344	----	16.6	----
Durum				
Mindum	5296	470	17.8	56.6
Nodak	6519	2311	16.4	56.7
Kubanka	1440	2310	15.2	55.0

P.E. = 4.3 per cent

[a] Double cross = Marquis-Iumillo x Kanred-Marquis

[b] Single plots.

Southeast Experiment Station, Waseca (R. E. Hodgson) (Jan. 4)

Yields, test weight per bushel, and percentage of stem-rust infection of spring-wheat varieties grown in triplicate-plot experiments at Waseca, Minn., 1931

Class and Variety	C.I.No.	Minn.No.	Yield (Bu. per acre)	Test Weight (Lbs.)	Stem Rust (per cent)
Hard Red Spring					
Double Cross,II-21-47	10005	2305	30.5	60.5	5
Marquis x Kota,1656.85	8435	----	30.0	59.4	T
Double Cross,II-21-7	10002	2302	29.8	60.4	T
Double Cross,II-21-94	--	2340	29.7	59.5	6
Double Cross,II-21-48	10020	2315	29.6	58.8	T
Reliance	7370	----	29.2	60.2	57
Ceres	6900	----	29.2	59.5	8
Double Cross,II-21-28	10003	2303	28.9	58.4	T
Double Cross,II-21-84	10021	2316	28.9	58.8	9
Double Cross,II-21-42	10004	2304	27.8	57.8	4
Double Cross,II-21-81	--	2338	27.7	58.1	T
Double Cross,II-21-92	--	2339	27.6	59.5	1
Marquis x Kota, 1656	6898	----	27.1	58.7	1
Marquis x Kota 1656.48	10014	----	26.8	59.4	4
Marquis	3641	----	26.1	58.6	48
Marquillo	6887	----	25.2	57.6	T
H-44	8177	----	23.1	56.4	0
Hope	8178	----	22.6	56.7	0
Supreme	8026	----	21.8	57.0	57
Reward	8182	----	21.5	61.2	27
Marquillo x Red Bobs, II-22-28[a]	----	2343	31.9	57.9	T
Marquillo x Red Bobs, II-22-30[a]	----	2344	29.7	58.6	T
Double Cross,II-21-93[a]	----	2342	27.0	59.8	5
Double Cross,II-21-91[a]	----	2341	26.7	60.1	5
Durum:					
Mindum	5296	----	33.5	63.5	13
Nodak	6519	----	28.8	59.7	T
Kubanka	1440	----	27.7	60.0	T

P.E. = 3.5 per cent

a/Single plots.

Northwest School and Station, Crookston (R. S. Dunham) (Jan. 4)

Yields, test weight per bushel, and percentage of stem-rust infection of spring-wheat varieties grown in triplicate-plot experiments at Crookston, Minn., 1931

Class and Variety	C.I.No.	Minn.No.	Yield (Bu. per acre)	Test Weight (Lbs.)	Stem Rust (per cent)
Hard Red Spring:					
Double Cross,II-21-42	10004	2304	36.6	59.5	18
Double Cross,II-21-81	----	2338	36.3	59.9	T
Marquis x Kota,1656	6898	----	36.1	60.5	13
Double Cross,II-21-28	10003	2303	35.7	60.3	T
Double Cross,II-21-48	10020	2315	35.4	60.1	15
Double Cross,II-21-7	10002	2302	35.2	60.9	T
Ceres	6900	----	35.2	61.0	30
Marquis x Kota,1656.48	10014	----	35.0	58.7	5
Double Cross,II-21-47	10005	----	33.6	61.2	15
Reliance	7370	----	33.3	59.5	30
Double Cross,II-21-84	10021	2316	33.0	60.2	15
Double Cross,II-21-94	----	2340	32.8	60.8	8
Double Cross,II-21-92	----	2339	32.7	59.9	10
Marquis x Kota,1656.85	8385	----	32.4	59.4	8
Reward	8182	----	31.2	62.5	35
H-44	----	----	30.9	59.1	0
Marquillo	8177	2202	30.1	58.4	T
Marquis	3641	----	29.4	58.7	45
Hope	8178	----	29.3	56.3	0
Supreme	8026	----	28.3	58.9	60
Marquillo x Red Bobs[a]	----	2344	36.6	----	10
Do	----	2343	34.2	----	10
Double Cross,II-21-93[a]	----	2342	33.8	----	15
Double Cross,II-21-91[a]	----	2341	32.3	----	20
Durum:					
Mindum	5296	----	40.2	61.3	8
Kubanka	1440	----	30.4	57.5	3
Nodak	6519	----	28.5	58.2	-

P.E. = 3.4 per cent

[a] Single plots.

West Central Experiment Station, Morris (R. O. Bridgford) (Jan.4)

Yields, test weight per bushel, and percentage of stem-rust infection of spring-wheat varieties grown in triplicate-plot experiments at Morris, Minn., 1931

Class and Variety	C.I.No.	Minn.No.	Yield (Bu. per acre)	Test Weight (Lbs.)	Stem Rust (per cent)
Hard Red Spring					
Double Cross,II-21-28	10003	2303	26.3	57.6	1
Double Cross,II-21-84	10021	2316	25.7	59.0	2
Reliance	7370	----	25.3	60.2	32
Ceres	6900	----	24.8	59.7	6
Marquis x Kota,1656.43	10014	----	24.8	59.2	4
Double Cross,II-21-7	10002	2302	23.7	59.9	1
Double Cross,II-21-48	10020	2315	23.7	59.4	4
Double Cross,II-21-81	--	2338	23.7	58.8	1
Double Cross,II-21-47	10005	2305	23.5	60.7	3
Marquis x Kota, 1656	6898	----	23.3	59.3	3
Double Cross,II-21-92	----	2339	23.0	58.8	4
Marquis x Kota, 1656.85	8385	----	22.8	58.9	1
H-44	8177	----	22.1	56.9	T
Supremo	8026	----	21.4	58.7	62
Reward	8182	----	21.3	60.3	53
Marquis	3641	----	20.7	59.3	40
Double Cross,II-21-94	----	2340	20.5	58.9	2
Double Cross,II-21-42	----	2304	20.4	58.4	5
Marquillo	----	2202	20.4	57.8	3
Hope	----	2297	18.9	55.7	T
Double Cross,II-21-93a/	----	2342	25.3	----	3
Marquillo x Red Bobs, II-22-30a/	----	2344	22.9	----	10
Double Cross,II-21-91a/	----	2341	22.3	----	7
Marquillo x Red Bobs II-22-28a/	----	2343	18.9	----	2
Durum					
Mindum	5296	----	22.1	61.2	4
Nodak	6519	----	21.9	60.8	2
Kubanka	1440	----	20.2	59.7	1

P.E. = 1.1 per cent

a/Single plots.

GREAT PLAINS AREA (South to North)

TEXAS

Texas Agricultural Substation No. 4, Beaumont (Rice Production and Improvement, H. M. Beachell) [Dec. 31]

Average yield and date of maturity of 12 varieties of rice grown in replicated plots at Substation No. 4, Beaumont, 1931

Variety	C.I.No.	Date of Maturity	Average yield per acre (Lbs.)
Caloro	1561-1	Sept. 6	2,181.3
Early Prolific	----	Aug. 26	1,961.3
Blue Rose	----	Sept. 22	1,812.5
Acadia	1988	Sept. 21	1,771.9
Lady Wright	----	Aug. 25	1,748.1
Storm Proof	----	Aug. 25	1,706.3
Edith	----	Aug. 24	1,703.1
Colusa	1600	Aug. 23	1,681.0
Rexoro	1779	Oct. 5	1,509.4
Fortuna	1344	Sept. 19	1,503.1
Delitus	1206	Sept. 9	1,431.3
Honduras	1643	Aug. 24	1,243.8

These varieties were grown on rather weedy land which accounts for the somewhat low average yields per acre.

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (Dec. 31).

Although small grains in this section were for the most part sown late, favorable weather in November and December enabled them to grow rapidly and all are in excellent condition. Leaf rust is plentiful on susceptible varieties such as Nebraska No. 28, but no stem rust has been found.

The mean temperature for December was 3.6° above normal. The mean temperature of each month since August has been above normal. The first frost of the season was recorded on December 4. Only three killing frosts were recorded at the end of the month. The minimum temperature to date is 27°. The frost-free period for the 1931 season was 226 days compared to a normal frost-free period of 228 days.

Rainfall in December amounted to 2.17 inches, slightly below normal. The rainfall for the entire year is 5.28 inches below normal.

NEW MEXICO

United States Field Station, Tucumcari (D. R. Burnham) (Dec. 10)

Yield in bushels[1/] per acre of grain-sorghum varieties grown in date-varietal experiment, 1931

Variety	C.I.No.	Planted May 29	Planted June 15	Av. of 2 plantings
Reed kafir	628	52.3	34.1	43.2
Double Dwarf milo	868	42.7	38.4	30.6
Western Blackhull kafir	906	47.9	33.0	40.5
Texas Blackhull kafir	865	45.2	34.1	39.7
Dwarf Yellow milo	332	37.7	41.0	39.4
Wheatland	918	44.3	33.7	39.0
Sunrise kafir	472	41.0	33.9	37.5
Local Dwarf kafir	----	43.4	30.9	37.2
Dawn kafir	340	43.6	29.5	36.6
Club kafir	901	40.2	32.3	36.3
Dawn selection	904	41.0	30.2	35.6
Premo	873	41.8	29.3	35.6
Beaver milo	871	38.4	32.3	35.4
Wonder kafir	872	36.2	30.4	33.3
Dwarf hegari	750	35.4 (poor stand)	30.2	32.8
Kafir-milo x milo (332-31-79)	960	36.6	27.5	32.1
Ajax F.C.6620	968	37.3	26.8	32.1
Feterita	182	34.1	28.6	31.4
Kafir-milo x milo (332-6)	961	35.4	26.4	30.9
Kaferita	812	29.6 (poor stand)	27.3	29.0
Grohoma	920	34.8	22.5	28.7
Chiltex	874	25.0 (poor stand)	31.1	28.1

1/56 lbs. per bushel

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Dec. 31)

The grain sorghum plots were threshed on December 15. Yields probably will average higher than those of 1930.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens) (Dec. 31)

Winter wheat made some growth in December. The rate-and-date-of-seeding plots sown on November 20 were not well emerged until December 26. A light infection of leaf rust was noted. In general, the condition of winter wheat is quite satisfactory. Freezes during the month checked vigorous growth of fall-sown barleys in the nursery.

The absolute maximum and minimum temperatures for the month were 71° on the 22nd and 17° on the 14th, respectively. The precipitation totaled 0.48 of an inch.

KANSAS

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson) (Dec. 30)

The year just ended has been a most discouraging one to Kansas farmers. A record-breaking crop of over 223,000,000 bushels of winter wheat with the highest acre yield since 1914 has sold for less than the cost of production. Due to low prices and deficient moisture at sowing time, the acreage of the new crop has been reduced by an amount estimated at 14 per cent. The condition of the new crop as of December 1 is given as only 70 per cent of normal, which is the lowest since 1922 and indicates a probable large abandonment. This poor condition exists mostly in the western third of the State and particularly in the southwestern portion, where lack of moisture, together with poor seedbed preparation, late sowing, and injury by false wire worms, is most prominent.

The corn crop for the State is estimated as of November 1 at 116,000,000 bushels, which is about 10 per cent less than a 5-year average but half again as much as the very poor crop of 1930. General and continuous rains started about November 10 which practically stopped husking in the eastern and northern parts of the State for nearly a month. However, the December weather has been unusually warm and open so that husking is now well along. The prospect of large abandonment of the wheat acreage indicates an increased acreage of corn and sorghum for the coming year. The experimental plots at Manhattan yielded about half a normal crop, but selfed lines in the nursery were in many cases a complete failure.

COLORADO

United States Dry-Land Field Station, Akron (Wheat Improvement, J. J. Curtis) (Jan. 2)

On December 28, 8 to 10 inches of snow fell, and drifted during the night. The wind swept all the snow off the wheat-varietal experiment, but about 4 or 5 inches of snow remain on the winter-wheat nursery.

The maximum temperature for December was 62° on the 21st; minimum, 3° below zero on the 12th; precipitation, 0.9 of an inch.

SOUTH DAKOTA

United States Field Station, Redfield (Wheat Improvement, E. S. McFadden) (Dec. 15)

Yields of the leading varieties in the spring-wheat nurseries grown in 1931 are presented in the following tables. Extreme heat during the filling period was the principal factor limiting the yields this year. There was scarcely a trace of either leaf or stem rust, and very little disease of any kind.

Three outstanding generalizations can be drawn from the different nurseries:

1. Many of the Hard Federation derivatives gave high yields as a result of their early maturity which enabled them to escape severe injury by drought and heat.

2. The rust-resistant Hope and Marquis-Emmer derivatives, as a class, gave low test weights and low yields. Yet most of these wheats have been carefully selected for a kernel type that should give high test weights. The low test weights and low yields of these wheats appear to be due to a peculiar susceptibility to heat injury.

3. The Kota-Webster selections and their derivatives are noteworthy for their high test weights and high yields. Yet most of these wheats have long, slender kernel types that would be expected to give low test weights. The high test weights and high yields of these wheats appear to be due to a peculiar resistance to heat.

Under droughty conditions, the Kota-Webster selections are nearly as resistant to stem rust as the Marquis-Emmer derivatives. They appear to have considerable value as parental material in the breeding of varieties adapted to semiarid conditions.

Table No. 1 presents the yields and test weights of the 10 leading varieties of spring wheat compared with Marquis, Ceres, and Hope grown in triplicate guarded rod rows. There were 56 varieties grown in this nursery. Eighteen of these were Hope or Marquis-Emmer derivatives, none of which were above the average yields of either the Marquis or Ceres checks. On the other hand, all three of the Kota-Webster selections grown in this nursery out-yielded both Marquis and Ceres, and one of them was at the top of the list.

Table No. 2 presents data on the nine leading varieties of spring wheat grown in triplicate unguarded rod rows in comparison with Marquis, Ceres, and Hope. There were 198 strains in this nursery. All of these except Marquis and Ceres were Marquis-Emmer or Hope derivatives. Most of them are known to carry the Hope reaction to stem rust. Only one of them, Selection 1552, outyielded Marquis. This selection, while recorded as a straight H-44 x Marquis selection made in 1924, is believed to be the result of a later natural cross with one of the Kota-Webster selections, since it has several Kota-Webster characteristics, such as a long type of kernel, long neck, brown chaff, and the Kota-Webster type of rust reaction.

Table No. 3 presents data on spring-wheat varieties grown in single unguarded rod rows in comparison with Marquis. There were 180 strains grown in this nursery. Many of these were Marquis-Emmer hybrids, none of which outyielded Marquis. A number of the Hard Federation derivatives gave comparatively high yields as a result of their early maturity, which enabled them to escape drought and heat injury. It is noteworthy that the only Kota-Webster hybrid grown in this nursery was very near the top of the list.

Table No. 4 presents data from a special ecological experiment comparing certain promising Marquis-Emmer hybrids grown in unguarded single rod rows with Marquis, Ceres, Hope and Kota-Webster (H151-25). There were 46 Marquis-Emmer hybrids in this nursery. Only two of these were above the average of the Marquis checks in yield. One of these was Selection 1552, which was outstanding in yield in one of the other nurseries (Table No.2). The other was 8A-2-12-9. While this selection outyielded the average of the Marquis checks, it did not outyield the average of the nearest Marquis checks. It is possible that this selection does not carry the Hope type of rust reaction, since its parent, 8A-2-12, was heterozygous for rust reaction at Webster in 1927. The only Kota-Webster selection grown in this nursery is at the top of the list. An exact duplicate of this nursery was grown in the cool, high-altitude lake region at Webster in the hope of getting data on the yeilding ability of these wheats under cool, humid conditions in comparison with their performance under drier and hotter conditions at Redfield. However, the nursery at Webster was so badly injured by a late spring frost that it had to be abandoned

Table 1.-Test weights and yields of the 10 leading hybrid selections of spring wheat compared with the Marquis, Ceres, and Hope varieties, grown in triplicate guarded rows at Redfield, 1931

Variety or Cross	C.I.No.	Hybrid or Nursery No.	Test Weight (Lbs.)	Yield (Bu. per acre)
Kota-Webster	----	H-151-25	60.0	16.0
Apollo	----	Sask.No.1850	54.0	14.7
Kota-Webster	----	H-89-25	58.0	12.9
Marquis-Kota	----	1656.6	59.0	12.6
Marquillo x Kota-Marquis	----	II-21-28	58.5	12.3
Marquillo x Marquis-Kanred	----	II-21-94	56.0	11.9
Marquis-Kota	----	1656.123	58.5	11.7
Marquis-Kota	----	1656.175	57.0	11.6
Kota-Webster	----	H-123-25	59.0	11.5
Kanred-Marquis	----	24370B-5-14-3	57.5	11.5
Ceres (Av. 2 checks)	6900	--------	57.0	11.4
Marquis (Av. 3 checks)	3641	--------	56.0	10.7
Hope (Av. 2 checks)	8178	--------	52.5	4.4

Table 2.-Yields and test weights of 9 leading hybrid selections of spring wheat compared with the Marquis, Ceres, and Hope varieties, grown in triplicate unguarded rows at Redfield, 1931

Variety or Cross	C.I.No.	Nursery or Hybrid No.	Test Weight (Lbs.)	Yield (Bu.per acre)
H-44 x Marquis	----	Sel. 1552	54.5	15.3
Marquis (Av. 3 checks)	3641	---------	56.0	14.6
Reliance x Hope	----	25347A-1-8-10-2	58.0	14.6
Hope x Hard Federation	----	28529A-104-20	53.0	14.5
Hope x Marquis	----	26373B-4-3-4	54.5	14.2
Reliance x Hope	----	25347A-1-4-9-14	53.0	14.0
Hope x Hard Federation	----	28529A-2-86-14	54.0	13.9
Reliance x Hope	----	25347A-1-48-54	58.0	13.7
Hope x Marquis	----	26373B-2-23-1-16	55.5	13.6
H-41 x Marquis	----	Sel. 256	53.0	13.6
Ceres	6900	---------	58.0	10.6
Hope	8178	---------	51.0	2.8

Table 3.--Yields and test weights of hybrid selections that produced higher yields than Marquis, when grown in single unguarded rod rows at Redfield, 1931

Variety or Cross	C.I.No.	Nursery or Hybrid No.	Test Weight (Lbs.)	Yield (Bu.per acre)
Kota x Hard Federation	----	9D-1-6-1-4-3-1	58.5	20.9
Kota-Hard Federation x Kanred-Marquis	----	A-1-5-1	60.0	19.1
Do	----	A-1-2-1-2	59.5	17.0
Reliance x Kota-Webster	----	A-3-1-7	57.0	17.0
Kota-Hard Federation x Kanred-Marquis	----	A-2-4-5	56.5	16.9
Do	----	A-1-1-2	58.5	16.5
Do	----	A-1-2-2-1	59.0	16.4
Double Cross x Ceres	----	R. L. 625	56.0	16.0
Kota-Hard Federation x Kanred-Marquis	----	A-1-21-1-1	60.0	15.9
Do	----	A-1-20-2	56.0	15.9
Do	----	A-1-14-3	57.5	15.6
Kanred x Marquis	8018	--------	59.5	15.2
Kota-Hard Federation x Kanred-Marquis	----	B-1-38-1	58.0	15.1
Do	----	C-4-7-1-2	59.0	15.1
Kanred x Marquis	----	B-9-14	58.0	15.1
Hanson	----	N.D. 2322	57.0	15.0
Kota-Hard Federation x Kanred-Marquis	----	N. No.1066	57.0	14.4
Double Cross x Ceres	----	R. L. 627	55.0	14.3
Marquillo x Marquis-Kanred	----	II-21-92	58.5	14.2
Kota-Hard Federation x Kanred-Marquis	----	A-2-5-1	58.5	14.0
Do	----	N. No.1074	58.0	13.8
Pentad x Marquis	----	R. L. 723	56.0	13.7
Marquillo x Marquis-Kanred	----	II-21-53	60.5	12.6
Do	----	II-21-75	58.0	12.5
Marquis (Av. 9 checks)	3641	--------	56.9	11.9

Table 4.-Yields and test weights of the leading Marquis-Emmer hybrid selections grown in single unguarded rod rows in a special ecological experiment in comparison with Kota-Webster (H-151-25), Marquis, Ceres, and Hope at Redfield, 1931

Variety	C.I.No.	Hybrid or Nursery No.	Test Weight (Lbs.)	Yield (Bu. per acre)
Kota-Webster	----	H-151-25	59.5	14.0
H-44 x Marquis	----	Sel.1552	58.0	13.4
Marquis-Emmer x Kanred-Marquis	----	8A-2-12-9	56.0	12.7
Marquis (Av. 5 checks)	3641	-------	57.4	11.4
Marquis-Emmer x Kanred-Marquis	----	8A-2-12-10	54.0	10.9
Marquis-Emmer x Marquis	----	Sel. 1075	55.5	10.3
" " "	----	Sel. 1217	56.5	10.2
" " "	----	Sel. 996	57.0	10.0
" " "	----	Sel. 631	57.0	9.9
" " "	----	Sel. 1280	56.0	9.7
Ceres	6900	-------	59.0	9.7
Hope	8178	-------	54.0	3.1

(Dec. 31)

The James River Valley of South Dakota is under a 12-inch blanket of snow this morning. One of the heaviest snow-falls on record in this section followed a drizzling rain on the night of December 29. This should help greatly in bringing the winter wheat through the winter. The plots had been bare for several days following a period of warm weather just before Christmas. Mild weather with occasional light snow flurries prevailed throughout the greater part of December.

South Dakota Agricultural Experiment Station, Brookings.
(K. H. Klages) (Dec. 10)

The results obtained from the varietal experiments with spring wheat at Brookings, Highmore, Eureka, and Ardmore in 1931 are presented in the following tables. Hot weather caused a near failure at Highmore and reduced yields and test weights at both Brookings and Eureka.

Yields, test weight, and percentage of stem rust from spring-wheat varieties grown in triplicate plot experiments at Brookings, S. Dak., 1931

Class and Variety	C.I.No.	Minn. No.	Yield (Bu.per acre)	Test Weight (Lbs.)	Stem Rust (Per cent)
Hard Red Spring					
Double Cross	10005	2305	12.7	61.3	T
Do	10003	2303	12.3	58.3	T
Reliance	7370	----	12.3	60.0	5
Ceres	6900	----	12.0	59.2	T
Marquis	3641	----	11.5	58.3	10
Komar	8004	----	11.3	59.3	T
Kota	5878	----	10.8	60.7	0
Marquis x Kota, 1656.48	10014	----	10.7	57.0	T
Garnet	8181	----	10.3	56.3	10
Supreme	8026	----	10.3	58.8	15
Reward	8182	----	10.0	61.3	10
H-44	8177	----	9.0	55.5	0
Marquillo	6887	----	7.2	58.2	T
Hope	8178	----	7.0	56.8	0
Prelude	4323	----	6.3	59.7	10
White					
Qulaity	6607	----	12.3	58.8	15
Durum					
Mindum	5296	----	14.7	62.7	0
Kubanka, 75-3-15	----	----	13.3	61.0	0
Monad	3220	----	13.3	61.2	0
Kubanka	1440	----	11.8	60.8	0
Nodak	6519	----	11.7	60.5	0
Acme	5284	----	11.5	62.5	0
Arnautka	4064	----	10.8	61.0	0

Highmore Substation, Highmore, (S. W. Sussex) (Dec. 10)

Yields and test weight of spring-wheat varieties grown in plot experiments at the Highmore Substation, 1931

Class and Variety	C.I.No.	Yield (Bu. per acre)	Test Weight (Lbs.)
Hard Red Spring:			
Reward	8182	4.1	52
Garnet	8131	3.7	46
Supreme	8026	2.6	51
Prelude	4323	2.6	57
Komar	8004	2.5	53
Marquis	3641	2.2	50
Marquillo	6837	2.2	46
Ceres	6900	2.1	53
Reliance	7370	1.8	54
Marquis x Kota,1656.48	10014	1.7	54
Kota	5878	1.5	52
Hope	8178	1.4	46
Double Cross,Minn.2305	10005	.8	53
White			
Quality	6607	3.6	52
Durum			
Kubanka	1440	1.5	56
Kubanka 75-3-15	----	1.5	56
Mindum	5296	1.5	56
Arnautka	4064	1.3	57
Monad	3220	1.1	59
Nodak	6519	1.1	59
Acme	5284	1.0	57

Eureka Substation, Eureka, (Walter Schonbrod) (Dec. 10)

Yields of spring-wheat varieties grown in triplicate plot experiments at the Eureka Substation, Eureka, 1931

Variety	C. I. No.	Yield (Bu. per acre)
Hard Red Spring:		
Reward	8182	17.3
Ceres	6900	17.1
Double Cross, Minn. 2305	10005	16.8
Supreme	8026	16.0
Marquis x Kota, 1656.48	10014	15.3
Marquis	3641	14.4
Marquillo	6887	14.4
Komar	8004	14.2
Reliance	7370	13.3
Hope	8178	11.1
Durum:		
Kubanka 75-3-15	----	16.6
Acme	5284	16.2
Nodak	6519	14.6
Mindum	5296	14.4
Kubanka	1440	14.3

United States Dry-Land Field Station, Ardmore (O. R. Matthews) (Dec. 20)

Yields of spring-wheat varieties grown in triplicate plot experiments at Ardmore, 1931

Class and Variety	C. I. No.	Yield (Bu. per acre)
Hard Red Spring:		
Reward	8182	2.8
Ceres	6900	1.7
Reliance	7370	1.1
Double Cross, Minn. 2305	10005	1.1
Supreme	8026	.8
Kota	5878	.8
Marquillo	6887	.8
Marquis	3641	.6
Hope	8178	.6
Durum:		
Kubanka	1440	2.2
Nodak	6519	1.7
Pelis	1584	1.4
Mindum	5296	.8

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard) [Jan. 2]

The frequent thawing in the last half of December did not completely uncover the winter-wheat nursery. A light layer of snow remained over the base of the plants, even though most of the ground between the rows was bare. No green growth was evident in any of the varieties.

A 5-1/2-inch snowfall on December 30 and 31 will provide a protective covering as long as the present below-freezing weather continues.

The mean temperature for the month was 20°. The maximum was 47° on December 20; minimum -14° on December 31, the lowest temperature recorded in 1931.

Eight and one-half inches of snow fell during the month, amounting to 0.74 of an inch of precipitation.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (Jan. 2)

Revision should be made of the data on Russian thistles in the flax date-and-rate-of-seeding-and-tillage experiment reported in the Cereal Courier, December 10, 1931, page 354. A more dependable estimate has been determined from counts of thistles in entire plots sown on the two latest dates. In plots containing few thistles data from small samples do not give an accurate estimate of thistles in the entire plot because samples taken at random from some plots contain no thistles and samples from other plots contain more than the average number. The table now reads as follows:

Date of Seeding	Russian thistles per acre	
	Number of plants	Pounds
April 20	161,000	8,690
April 30	69,000	5,312
May 9	49,000	3,226
May 20	9,000	232
May 29	8,000	467
June 10	2,000	206

The precipitation for the last four months of 1931 was about 2-1/2 inches above the 18-year average. This should benefit crops in 1932. Most of this precipitation must have been absorbed because the streams have remained exceptionally low throughout the fall and winter.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (Jan. 4)

The weather in December was comparatively mild. About two inches of snow were on the ground the first half of the month and none during the latter half. A 2-inch snowfall the last of the month is protecting the winter grain.

Winter wheat appeared to be in good condition when uncovered in December. Temperatures were slightly below zero a few times since then but probably not low enough to cause serious damage to the wheat.

Corn outyielded other cereal crops in 1931 at the Substation and in a considerable area in this part of the State. Corn yields at the Substation were nearly equal to the 10-year average, while yields of the small grains were only slightly above those of the poorest years.

The yields of corn and stover are presented below. Due to the long frost-free season, all varieties matured except Rainbow Flint and Burda dent. Gehu and other early flints produced the highest average yields in previous years, with Falconer and Northwestern dent ranking slightly below.

Because of fairly good yields of corn and the near failure of other cereal crops, the corn acreage doubtless will be increased in this region this year.

The precipitation for December was 0.37 of an inch and the total for 1931 was 16.17 inches, or slightly above normal. There was a deficiency in precipitation in January, April, May and the first three weeks of June. The lack of rain in the fall and early winter of 1930 caused very dry subsoil in the spring of 1931. The extreme heat and hot winds in June and July, together with freezing, cutworm injury, and thin stands in some crops were responsible for the low yields in 1931.

Acre yields of corn varieties grown in duplicate 56-acre plots at the Dickinson Substation, Dickinson, 1931

Variety	Group	Yield: Air-dried shelled corn (Bu. per acre)	Yield: Stover (Lbs.)
Pride of the Plains	Flour	25.0	1,876
Shota	Flint	22.1	1,372
Northwestern[a/]	Semident	20.4	1,635
Yellow Flour	Flour	20.3	1,064
Gehu	Flint	20.0	1,623
Falconer	Semident	20.0	1,568
Rainbow	Late flint	19.4	2,968
Alta	Dent	19.4	1,904
Northwestern Recombination	Semident	18.9	1,820
Northwestern Hybridized	"	18.2	1,848
Dakota White	Flint	18.2	1,260
Payne	Dent	18.1	1,932
Minnesota 13 (Early Recombination)	"	16.2	1,372
Minnesota 13 (Double cross)	"	15.1	1,624
Burda	"	15.1	1,848
King's Cross	Semident	13.6	1,680

a/ Average of checks

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, H. H. Flor) (Dec. 17)

During the year 1931 tests to determine the effect of seed treatment on yield of flax were conducted at the following stations in Minnesota, North Dakota, and Montana.

Station	Cooperator
Bozeman, Mont.	H. E. Morris
Edgeley, N. Dak.	O. A. Thompson
Fargo, N. Dak.	H. H. Flor
Hettinger, N. Dak.	C. H. Plath
Langdon, N. Dak.	Glen S. Smith
Mandan, N. Dak.	J. C. Brinsmade, Jr.
Morris, Minn.	R. O. Bridgford
St. Paul, Minn.	C. C. Allison
Dickinson, N. Dak.	R. W. Smith

Much of the region in which the tests were conducted suffered from heat and drought, but fair crops were obtained at Bozeman, Mont., and at Edgeley, Fargo, Langdon, and Mandan, N. Dak. At each cooperating station Bison, a wilt-resistant variety, and Damont, a wilt-susceptible variety, were grown in quadruplicate plots of three rod rows each. Notes were taken on the stand, vigor, and yield of the center row of each plot but the differences due to the various treatments were too small and irregular to be significant. In the accompanying table, only the results of the yield tests are given, as these are the final measure of the success of the treatment. Apparently none of the treatments had an appreciable effect on the yield of either Bison or Damont when grown in normal field soil or in wilt-sick soil.

Average yield of flax seed-treatment plots at cooperating stations in 1931

Variety	Treatment	Bozeman, Mont.	Edgeley, N. Dak.	Fargo, 1/ N. Dak.	Fargo, 2/ N. Dak.	Hettinger, N.Dak.	Langdon, N. Dak.	Mandan, N. Dak.	Morris, Minn.	St. Paul, Minn. 2/	St. Paul, Minn.	Average.
Bison	Formaldehyde spray - (1-320, one gallon per bushel)	10.7	10.8	9.7	13.8	4.1	11.5	12.5	5.7	4.0	6.2	8.9
Do	Copper carbonate 4 oz. per bu.	9.9	11.9	8.6	14.5	3.8	16.8	13.1	6.1	4.1	4.8	9.4
Do	Check	12.7	10.3	9.3	13.9	4.7	15.0	12.5	6.1	4.3	5.3	9.4
Do	Ceresan 4 oz. per bu.	12.1	11.6	9.0	14.0	3.9	16.8	13.2	6.4	4.3	5.3	9.7
Damont	Formaldehyde dip spray (1-320, one gallon per bushel)	8.4	9.7	0.0	12.8	4.2	13.0	12.1	0.9	0.8	0.0	6.2
Do	Copper carbonate 4 oz. per bu.	12.3	12.0	0.0	13.2	4.3	15.9	12.7	1.5	1.1	0.0	7.3
Do	Check	11.6	9.4	0.0	11.5	4.6	11.4	11.9	1.6	0.9	0.0	6.2
Do	Ceresan 4 oz. per bu.	11.3	9.6	0.0	12.1	4.2	12.4	11.7	1.7	1.3	0.0	6.4

1/ Wilt-sick soil 2/ Farm soil.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith) (Jan. 4)

Only 0.08 of an inch of precipitation was recorded in December. There was very little disagreeable weather. Less moisture fell than in December, 1930. Most of this section is still covered by November snows. The snow melted slightly on a few days, but there was little cracking of the ground.

The maximum temperature for the month was 37° on the 18th; minimum -18° on the 7th.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (Jan. 2)

The ground was partly covered with snow during the first half of December but this protection has been lacking for the past two weeks. The weather in December was comparatively mild, however, and winter wheat apparently is in good condition. Approximately 3 inches of snow fell on New Year's Day.

Temperatures for December: maximum, 57° on the 18th; minimum, 4° on the 11th; and mean 30°. Precipitation, 0.27 of an inch.

WESTERN BASIN AND COAST AREAS (North to West and South)

OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens) (Jan. 2)

During most of December eastern Oregon was covered with snow. There was a light snowfall in late November, followed by about 8 inches more during the first half of December. From December 16 to 26 warmer temperatures prevailed. In some localities the snow melted so rapidly that there was considerable run-off, but in the vicinity of Moro nearly all the precipitation was absorbed by the soil. On December 28 and 30 there was another snowfall of about 7 inches, most of which is still on the ground. The total precipitation for November was 1.54 inches, and for December, 2.69 inches.

Winter wheat, which in most localities had to be sown last fall in dry soil, has not yet emerged. Unless there is unusually cold weather with no snow covering, there probably will be good stands because the young plants seem to be in a healthy condition and have almost emerged.

The lowest temperature in December was 3° above on the 15th.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward) (Jan. 4)

Heavy snows in December were beneficial to this drought-stricken section. A total of 2.93 inches of precipitation was recorded in the form of snow and rain. A year ago only 0.38 of an inch of moisture was recorded in December.

CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, L. L. Davis) (Dec. 30)

December rains have brought the total rainfall for the season to about twice the normal amount. Snow in the Sierra Mountains has almost reached a record depth, which in many places is from 10 to 15 feet. Most of the irrigation water for rice depends upon this snowfall.

The rice crop was all harvested and threshed before fall rains began. In view of the fact that there was a water shortage a relatively small percentage of the acreage was abandoned.

The price of rice for the past few weeks has been $1.30 to $1.40 per cwt. for No. 1 Paddy, f. o. b. Sacramento Valley points.

Most farmers are holding their rice and there have been comparatively few shipments.

University Farm, Davis (Cereal Agronomy, G. A. Wiebe)(Dec. 29)

The seeding of the experimental cereal plots and nursery was completed the middle of December. Since then there have been abundant rains. The total precipitation for the season is 3-1/2 inches above normal.

Agricultural Experiment Station, Berkeley (Cereal Rusts, Ruth F. Allen) (Dec. 4)

Some difficulty has been encountered in culturing Puccinia purpurea, the rust of sorghum. Several hosts were tried, both in the greenhouse and out of doors, but the rust made only feeble growth. Late in the fall the steam was turned on in the greenhouse and the rust suddenly started to grow vigorously. Good-sized uredinia formed, followed by telia. Apparently this rust requires a higher temperature than the other cereal rusts.

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

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Vol. 24 February 10, 1932 No. 2
Personnel (Jan.16-Feb.10) and Field Station (Jan.1-31) Issue

PERSONNEL ITEMS

Mr. L. W. Boyle, stationed at Manhattan, Kans., is in Madison, Wis., engaged in cooperative research on flax wilt for several months.

Dr. J. A. Faris spent the week of February 5 in Brooklyn, N. Y., conferring with officials of the Brooklyn Botanic Garden regarding cereal-smut investigations.

Dr. M. T. Jenkins, stationed at Ames, Iowa, arrived in Washington on January 15 to spend four months in the interests of cooperative corn investigations.

Mr. M. A. McCall was in LaFayette, Ind., and Chicago, Ill., from January 21 to 24 in the interests of cooperative corn experiments.

Dr. L. F. Randolph, stationed at Ithaca, N. Y., arrived in Washington on January 11 and spent three weeks with Division officials in cooperative corn research.

Mr. T. R. Stanton visited the Brooklyn Botanic Garden, Brooklyn, N. Y., from January 11 to 14 conferring with Dr. George M. Reed, curator, relative to the preparation of manuscripts on the inheritance of smut resistance in oats. Arrangements also were made for retesting the smut resistance of promising agronomic selections which previously had been tested for resistance at the Brooklyn Botanic Garden.

VISITORS

Dr. L. O. Kunkel, pathologist at the Boyce Thompson Institute and the Rockfeller Foundation, visited the virus disease laboratory at the Arlington Experiment Farm on February 8.

MANUSCRIPTS AND PUBLICATIONS

3 A manuscript entitled "Methods of Testing Inbred Lines of Maize in Crossbred Combination," by Merle T. Jenkins and Arthur M. Brunson, was approved on January 12 for submittal to the Journal of the American Society of Agronomy.

4 A manuscript entitled "Some Effects of High Temperature on Polyploidy and Other Variations in Maize," by L. F. Randolph, was approved on January 23 for submittal to the Proceedings of the National Academy of Sciences of the United States of America.

5 A manuscript entitled "Some Factors Affecting the Reversal of Sex Expression in the Tassels of Maize," by Frederick D. Richey and George F. Sprague, was approved on January 26 for submittal to The American Naturalist.

7 A manuscript entitled "The Effect of Bunt on Yield of Wheat," by H. H. Flor, E. F. Gaines, and W. K. Smith, was approved on February 3 for submittal to the Journal of the American Society of Agronomy.

6 A manuscript entitled "Heterothallism and Hybridization in Sphacelotheca sorghi and S. cruenta," by H. A. Rodenhiser, was submitted on January 28 for publication in the Journal of Agricultural Research.

9 A brief manuscript entitled "Modifications in the Columbia Drill for Seeding Oats and Barley," by N. E. Jodon, was approved on February 5 for submittal to the Journal of the American Society of Agronomy.

8 A manuscript entitled "A Case of Two Simultaneous Mutations for Virescent Seedlings in Maize," by George F. Sprague and Merritt N. Pope, was approved on February 3 for submittal to The American Naturalist.

10 A manuscript entitled "Inheritance of Bunt Reaction and Other Characters in Hope Wheat Crosses," by J. Allen Clark, K. S. Quisenberry, and Leroy Powers, was submitted on February 9 for publication in the Journal of Agricultural Research.

U. S. Dept. Agr. Tech. Bul. 266 entitled "Morphologic and Physiologic Studies on Stem-Rust Resistance in Cereals," by Helen Hart, was received from the Government Printing Office on January 13, bearing date of December, 1931. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

The article entitled "Methods of Determining Glucose and Fructose in Corn Tissues," by V. H. Morris and E. F. Wesp, appears in Plant Physiology 7(1): 47-62, figs. 1-2. January, 1932. (Cooperation between the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

The 32-page Report No. 12 entitled "Iowa Corn Yield Test. Results for 1931," by Joe L. Robinson and A. A. Bryan, published by the Iowa Corn and Small Grain Growers' Association, was received February 3. (The Iowa Corn Yield Test is conducted by the Iowa Corn and Small Grain Growers' Association in cooperation with the Farm Crops Section, Iowa Agricultural Experiment Station, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.)

ANNUAL REPORT OF PUBLICATIONS AND MANUSCRIPTS
DIVISION OF CEREAL CROPS AND DISEASES

Calendar Year, 1931

In the calendar year 1931, 73 articles, papers, and abstracts were published in the various series of Department publications, in publications of cooperating State agricultural organizations, and in private journals. In the same year 76 manuscripts were submitted for

publication. There remain unpublished, as of December 31, 1931, 56 manuscripts submitted in 1931 and 2 submitted in 1930.

GENERAL OR MISCELLANEOUS

Dickson, James G. Agricultural Development in Soviet Russia and its Relation to European and American Agricultural Problems. III. Farmers' Inst. [Bul.], 21 p., illus. [February, 1931]

Dillman, Arthur C. The Water Requirement of Certain Crop Plants and Weeds in the Northern Great Plains. Jour. Agr. Research 42(4): 187-238, figs. 1-13. February 15, 1931.

Florell, Victor H. A Genetic Study of Wheat x Rye Hybrids and Back Crosses. Jour. Agr. Research 42(6): 315-339, figs. 1-7. March 15, 1931. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

_____. A Cytologic Study of Wheat x Rye Hybrids and Back Crosses. Jour. Agr. Research 42(6):341-362, figs. 1-9. March 15, 1931. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

Holbert, J. R., and W. L. Burlison. Cold Injury.(Abs.) Phytopathology 21(1): 128. January, 1931. (Cooperation by the Division of Cereal Crops and Diseases, Illinois Agricultural Experiment Station, and Funk Bros. Seed Co.)

Humphrey, Harry B. A Review of Recent American Literature on Mineral-Deficiency Diseases of Economic Plants. (Rapport Sur Les Recherches Américaines Relatives Aux Maladies Végétales Dues Aux Carences Minérales.) Proceedings of the Second International Congress of Comparative Pathology. [Paris] [October], 1931, p. 278-295. (Deuxième Congrès International de Pathologie Comparée. Paris, Oct., 1931.)

Immer, F. R., and E. R. Ausemus. A Statistical Study of Wheat and Oat Strains Grown in Rod-Row Trials. Jour. Amer. Soc. Agron. 23(2): 118-131. February, 1931. (Cooperation between the Division of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

Johnston, C. O. Goat Grass, a New Wheat-Field Weed, is Growing Troublesome. Yearbook of Agriculture 1931: 277-279, figs. 73-74. 1931. (Yearbook Separate 1188.)

Parker, J. H. Insect Resistance in Wheats and Sorghums a Heritable Character. Yearbook of Agriculture 1931: 316-317, figs. 91-92. 1931.

Reynoldson, L. A., W. R. Humphries, and J. H. Martin. Harvesting Small Grains, Soybeans, and Clover in the Corn Belt with Combines and Binders. U. S. Dept. Agr. Tech. Bul. 244, 55 p., 12 figs. May, 1931. (The investigation upon which this bulletin is based was conducted cooperatively by the Division of Farm Management and Costs of the Bureau of Agricultural Economics, the Division of Agricultural Engineering of the Bureau of Public Roads, the Division of Cereal Crops and Diseases of the Bureau of Plant Industry, and the agricultural experiment stations of Illinois and Indiana.)

Stadler, L. J. Hereditary Mutations Induced in Plants by the Action of X rays. Yearbook of Agriculture 1931; 287-289. 1931. (Yearbook Separate 1190.)

_____ The Experimental Modification of Heredity in Crop Plants. I. Induced Chromosonal Irregularities. Sci. Agr. 11(9): 557-572, figs. 1-9. May, 1931. (Cooperation between the Division of Cereal Crops and Diseases and the Missouri Agricultural Experiment Station.)

_____ The Experimental Modification of Heredity in Crop Plants. II. Induced Mutation. Sci. Agr. 11(10): 645-661, figs. 1-6. June, 1931. (Cooperation between the Division of Cereal Crops and Diseases and the Missouri Agricultural Experiment Station.)

AGRONOMIC SUBJECTS

Barley

Harlan, Harry V. The Origin of Hooded Barley. Jour. Heredity 22(9): 265-272, figs. 1-4 and frontispiece. September, 1931.

Robertson, D. W., Alvin Kezer, F. A. Coffman, J. F. Brandon, Dwight Koonce, and G. W. Deming. Barley in Colorado. Colo. Agr. Expt. Sta. Bul. 371, 37 p., illus. December, 1930. (Rec. Feb. 14, 1931) (Cooperation between the Divisions of Cereal Crops and Diseases and Dry-Land Agriculture and the Colorado Agricultural Experiment Station.)

Corn

Brunson, A. M. Pop-Corn Selecting for Added Popping Expansion would Pay Large Growers. Yearbook of Agriculture 1931: 441-443, fig. 140. 1931. (Yearbook Separate 1198.)

_____ What Does Hybrid Corn Mean? Kans. Farmer 69(6): 24. February 7, 1931. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

_____, and Carl W. Bower. Pop Corn. Farmers' Bul. 1679, 18 p., figs. 1-13. October, 1931. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Holbert, J. R. Corn More Resistant to Cold when Grown on Soil Rich in Plant Food. Yearbook of Agriculture 1931: 160-164, figs. 28-30. 1931. (Yearbook Separate 1184.)

Jenkins, Merle T., and Fisk Gerhardt. A Gene Influencing the Composition of the Culm in Maize. Iowa Agr. Expt. Sta. Research Bul. 138; [123]-151, figs. 1-8, May, 1931. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

_____, and Frederick D. Richey. Drought in 1930 Showed Some Strains of Corn to be Drought Resistant. Yearbook of Agriculture 1931: 198-200. 1931. (Yearbook Separate 1187.)

Richey, F. D., and G. F. Sprague. Experiments on Hybrid Vigor and Convergent Improvement in Corn. U. S. Dept. Agr. Tech. Bul. 267, 22 p., 10 figs. October, 1931

Robinson, Joe L., and A. A. Bryan. Iowa Corn Yield Test. Results for 1930. Iowa Corn and Small Grain Growers' Assoc. Report No. 11, pp. [3]-39, figs. 1-7. March, 1931. (Cooperation between the Iowa Corn and Small Grain Growers' Association and the Iowa Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

St. John, R. R., and J. F. Trost. Relation of Seed Quality to Yielding Ability and Disease Resistance in Hybrid Strains of Dent Corn. (Abs.) Phytopathology 21(1): 128. January, 1931. (Cooperation between the Division of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

Sayre, J. D., and V. H. Morris. Use of Expressed Sap in Physiologic Studies of Corn. Plant Physiol. 6(1): 139-148. January, 1931. (Cooperation between the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

_____, and V. H. Morris. Comparison of Methods of Determining Moisture in Corn Tissues. Plant Physiol. 6(3):577-583. July, 1931. (Cooperation between the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

_____, V. H. Morris, and F. D. Richey. The Effect of Preventing Fruiting and of Reducing the Leaf Area on the Accumulation of Sugars in the Corn Stem. Jour. Amer. Soc. Agron. 23(9):751-753. September, 1931. (Cooperation between the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

Flax

Dillman, A. C. Flaxseed Production in Kansas. Kans. State Bd. Agr. Bien. Rpt. (1929-1930) 27: 254-266, figs. 85-87. 1931.

Grain Sorghum and Broomcorn

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EDITORIAL

POSSIBLE ECONOMIES IN LABELING CEREAL NURSERIES

The small grain nurseries at many of our field stations contain several thousand rows. A correspondingly large number of nursery stakes is required if each row is labeled. Where many visitors examine the nursery and where many different helpers are engaged, the labeling of each row in single-row nurseries and one of the rows in each 3-row group is highly desirable. At stations having few visitors, however, a stake every tenth row is about all that is necessary to prevent confusion in taking field notes.

Stakes made of lath or heavier material can be used for several years with little breakage. Pot stakes are broken much more frequently, but many of them can be used for two or more years.

Stakes can be labeled rapidly with a weatherproof wax pencil, and if the old labels are washed off with gasoline the stake can be relabeled repeatedly. At many of the stations some form of metal holder for tag or card labels is attached to the stakes made of lath or heavier material, and the labels thus can be easily removed at harvest or threshing time and attached to the bundle or bag.

The usual 12-inch pot label costs more than nine dollars per thousand delivered to a field station. The number of such stakes required and the cost per nursery may not be large, but if every person in charge of nursery work were to follow the example of some individuals and stake every row in the nursery, the annual bill for nursery stakes alone in the Division of Cereal Crops and Diseases probably would be sufficient to pay the wages of six helpers for three months at 35 cents per hour, an item worth consideration.

PATNA RICE

The type of rice known in international trade as Patna is produced in India in the Provinces of Bihar, Orissa, Bengal, and Burma. Patna includes many varieties that enter largely into the rice exports from Calcutta. These rices have long, slender, rather cylindrical kernels that are white, translucent, and very hard. The hardness of kernel makes this type very desirable for use as food in the boiled state. Patna rice also is used in the United States in making commercial canned soups and is preferred to domestic rice, as it is less affected by processing methods than the softer rices grown in this country. Patna rice is imported into the United States, duty free, for soup manufacture. Approximately 1,750,000 pounds of milled rice are required annually for use in soups.

In order to meet, if possible, the demand for such rice with an American-grown product, seed samples of 30 so-called Patna rices were obtained from the principal sections in India where they were grown. During the past three seasons the rices were grown under field conditions in Texas, south of the rice-producing area, and in the extreme southern parts of Florida, Georgia, and Alabama. Prior to 1929, repeated attempts had been made to grow Patna rices at the Rice Experiment Station, Crowley, La. In these tests, as in recent trials, the varieties did not flower until October or early November, but occasionally some strains produced a few seeds to a panicle.

In experiments with controlled lighting, conducted at the Arlington Experiment Farm near Rosslyn, Va., the rices flowered and produced seed abundantly in response to a shortened day, comparable to the natural day length in the sections of India where Patna rice is grown. There Patna rice is sown in May and harvested from the latter part of October to the latter part of December. The temperature conditions existing in these sections of India during the short days of late autumn and early winter are not comparable with those of Continental United States. The results obtained thur far indicate that these rices can not be successfully grown in the United States even in the most southern part of the rice-producing area. However, further search is being conducted in an effort to find strains of this type that will be adapted to the southern rice area.

C. E. Chambliss.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

HUMID ATLANTIC COAST AREA (South to North)

GEORGIA

Coastal Plain Experiment Station, Tifton (Corn Breeding, H. S. Garrison) (Feb. 6)

Fall-sown oats have continued to grow throughout the winter as there has been no freezing or even cold weather. Early maturing oats that emerged in October are heading. Panicles are appearing in Fulghum (C. I. 708), Mulga (C. I. 2838), and the Richland x Fulghum hybrid (C. I. 2882). Other varieties are in the boot and will be heading soon if this weather continues. The nursery in general is very irregular, as some of the plants in many rows did not emerge until December, owing to the lack of moisture. As a consequence in almost every row there are some plants now heading while others are only from 3 to 6 inches high and will not head for some weeks. So far there has been no rust damage in the nursery. However, some of the varieties in the Station plots are badly infected with crown rust. It appears that the prospects for oats this year are as poor as they were good last year.

Director Starr visited the Station yesterday and stated that the oat fields on the way were a mass of rust.

HUMID MISSISSIPPI VALLEY AREA (South to North)

LOUISIANA

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg) (Jan. 31)

The weather has been unusually mild this winter. Only four light frosts have occurred, two early in November at 38° F., and two in January at 34°.

After the cornfields were plowed last fall volunteer corn came up very thickly and has been growing all winter. Many plants have reached a height of 4-1/2 feet and have produced silks and tassels but no kernels. It is very unusual to see partially green corn plants at this time of the year. Generally, volunteer corn is killed by the first frosts.

Prof. G. W. Snedecor of the Iowa State College Statistical Service gave experiment station staff a series of lectures on biometry and the analysis of variance and co-variation from January 4 to 6.

GREAT PLAINS AREA (South to North)

TEXAS

U. S. Field Station, Big Spring (F. E. Keating) (Feb. 1)

Yield in bushels a/ per acre of grain-sorghum varieties grown in the date-varietal experiment, 1931.

Variety	C.I. No.	Dates planted May 15	June 1	June 15	Av. of 3 plantings
Reed kafir	628	36.2	35.7	31.7	34.5
Standard Blackhull kafir	71	37.1	37.5	25.4	33.3
Ajax	968	44.2	31.3	15.6	30.4
Chiltex	874	37.1	32.6	16.1	28.6
Wonder kafir	872	30.4	35.3	19.6	28.4
Dawn kafir	340	32.1	26.8	24.6	27.8
Texas Blackhull kafir	865	33.9	27.7	21.0	27.5
Darso	615	34.8	31.3	16.1	27.4
Fargo Straightneck milo	809	31.7	27.7	21.9	27.1
Spur feterita	623	30.8	30.8	19.3	27.0
Premo	873	30.8	30.4	18.8	26.7
Bishop kafir	814	27.7	30.4	21.0	26.4
Schrock	616	36.2	30.4	11.2	25.9
Beaver milo	871	30.4	27.7	18.8	25.6
Wheatland milo	918	27.2	24.1	23.2	24.8
Early Red kafir	866	25.9	28.1	20.1	24.7
Grohoma	920	37.5	25.9	9.8	24.4
Dwarf feterita	-	28.6	25.9	16.1	23.5
Dwarf Yellow milo	332	30.8	17.9	15.2	21.3
Algeria	-	21.4	29.0	12.9	21.1
Standard feterita	182	13.4	33.9	12.5	19.9
Hybrid Dwarf feterita No.6	964	27.7	19.6	12.1	19.8
Dwarf hegari	620	14.3	8.0	7.6	10.0
Club kafir	901	--	37.5	--	--

a/ 56 pounds per bushel

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (Jan.15)

Mean temperatures continue considerably above normal. Roses have bloomed all winter, and fall-planted cabbage and turnips have produced a fine crop and are still growing.

No field work has been possible during the month. In many places fall sown grain is damaged by excessive water. "Green bugs" have been reported in some fields, although not any have been observed on the Substation. Leaf rust is gaining considerable headway due to the damp, warm weather.

(Feb.1)

A total precipitation of 7.12 inches was recorded in January. This is 4.79 inches above normal. Rain occurred on 11 days 1.83 inches having fallen during a 24-hour period. As the ground was already saturated there was considerable run off.

The temperatures in January were above normal, as they have been throughout the winter.

The heavy rainfall has been unfavorable for the growth of small grains. The ground has been saturated the entire month, while on level ground and poorly drained areas standing water has caused further damage. As the barley in the varietal test has continued to grow, it apparently has been injured less than the wheat and oats. Wheat and oats have turned red in spots and appear unhealthy. Spring sowing of oats has been delayed a week or 10 days, and there are no prospects of seeding for at least a week.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Jan. 30)

Mild weather prevailed in January. The maximum temperature was 63° on the 27th; minimum, 8° on the 30th. Precipitation in the form of showers and snows totaled 1.06 inches.

The following table presents the yields of grain-sorghum varieties grown in the date-varietal experiments in 1931.

Yield in bushels per acre of grain-sorghum varieties grown in date-varietal experiments, 1931

Variety	C.I. No.	Dates planted			Av. of 3 plantings
		May 25	June 8	June 22	
Dwarf milo	332	18.8	26.5	23.2	22.8
Beaver milo	871	15.4	24.0	17.5	19.0
Wheatland milo	918	26.1	26.5	19.2	23.9
Fargo milo	809	12.0	13.3	11.9	12.4
Feterita	182	30.9	31.2	20.6	27.6
Spur feterita	623	28.2	28.0	18.1	24.8
Dwarf hegari	750	6.7	3.2	8.2	6.0
Ajax	968	29.7	29.9	20.4	26.7
Chiltex	874	27.2	36.4	21.3	28.3
Early Red K.	866	28.4	33.5	20.0	27.3
Pink kafir	432	23.6	28.8	22.3	24.9
Dawn kafir	340	16.0	24.0	23.2	21.1
Sunrise kafir	472	13.3	25.1	19.2	19.2
Reed kafir	628	22.3	27.6	20.4	23.4
Sharon kafir	813	20.4	27.6	20.8	22.9
Standard kafir	71	16.6	25.1	19.4	20.4
Bishop kafir	814	21.3	25.2	25.0	23.8
Darso	615	21.5	32.2	19.8	24.5
Grohoma	920	12.4	25.5	16.2	18.0

Note; The yield of each variety for each date is the average of two plots. A bushel is figured at 56 pounds.

Fort Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson 1/) (Feb. 1.)

Yield in bushels 2/ per acre of grain-sorghum varieties grown in the date-varietal experiment, 1931

Variety	C.I. No.	Dates planted May 15	June 1	June 19	Av. of 3 plantings
Red kafir (Kan.Coop.1551)	---	10.2	22.5	9.1	13.9
Do	957	16.1	27.9	19.8	21.3
Grohoma	920	2.1	9.6	10.2	7.3
"Fargo" milo selection (30-17-4)	---	2.7	13.4	3.8	6.6
Pink kafir	432	9.1	28.4	9.6	15.7
Juicy Pink kafir	907	13.4	29.5	12.9	18.6
Modoc	905	26.8	37.0	25.2	29.7
Texas Blackhull kafir	865	23.0	32.1	17.1	24.1
Western Blackhull kafir	906	29.5	36.4	18.8	28.2
Dawn kafir selection	904	17.1	26.3	16.6	20.0
Dawn kafir	340	21.4	27.9	17.1	22.1
Club kafir	901	18.2	39.6	23.6	27.1
Yellow kafir	902	17.1	51.4	40.7	36.4
Wonder kafir	872	22.5	45.5	36.4	34.8
Standard feterita	182-1	22.5	38.0	46.1	35.5
Ajax	968	13.9	35.9	19.8	23.2
Dwarf Yellow milo	332	14.5	37.5	28.4	26.8
Milo x kafir (H. C. 2510)	903	4.8	27.3	20.4	17.5
Feterita x milo-kafir (H.C. 312)	---	25.2	44.5	24.1	31.3
Feterita x kafir (H. C. 2423)	969	35.9	50.9	33.2	40.0
Feterita x milo-kafir (H.C.301)	965	33.8	43.9	33.8	37.2
Kansas Orange x Dwarf Yellow milo	984	16.6	40.2	28.9	28.6
Milo x kafir (Manhattan Nur. 27-317)	963	10.2	34.8	27.3	24.1
Double Dwarf milo	868	20.4	40.2	22.0	27.5
Beaver milo	871	18.8	32.7	21.4	24.3
Wheatland milo	918	11.8	20.4	26.8	19.7
Custer milo	919	27.3	34.3	22.5	28.0
Milo-kafir x milo (H. C. 311)	---	24.1	26.8	12.3	21.1
Wheatland backcross (918x332-1-2)	---	40.7	38.0	25.2	34.6
Dwarf Freed	971	37.5	44.5	39.6	40.5
Sooner milo	917	40.2	44.5	47.7	44.1
Average	---	20.2	34.3	23.9	----
Hays Golden corn	---	10.7	9.1	25.2	15.0

1/ These experiments were combined with the sorgo date-varietal experiment and were conducted jointly with D. A. Savage, Division of Forage Crops and Diseases.

2/ 56 pounds per bushel.

NEBRASKA

Agricultural Experiment Station, Lincoln (Wheat Improvement, C. A. Suneson) (Feb. 11)

The past month has been characterized by temperatures averaging about one degree below normal, and the second greatest total snowfall ever recorded at Lincoln. The wheat plants have been buried under snow for 31 days, with the soil still unfrozen.

Observations made last week indicate that desiccation has begun in the older leaves while the youngest leaves appear to have made some growth. Controlled freezing tests indicate a significant reduction in ability to withstand low temperatures since late December.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (Feb. 2)

The ground is covered with snow to a depth of about 5 inches on the level. In most places the ground is uniformly covered, though in some places among trees the snow has drifted to a depth of over three feet. In January the precipitation totaled 0.44 of an inch. The snow has melted very little because of continued cold and cloudy weather. The mean temperature for January was 9°; maximum, 42° on the 25th; minimum -23°, the lowest temperature here for nearly two years.

The flax F_1 hybrids in the greenhouse are about 18 inches tall and are making sturdy growth, but have not yet started to bloom.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (Feb. 1)

The winter has been comparatively mild until the last half of January when 6 or 8 inches of snow fell and temperatures were below normal. The minimum temperature was -23° on January 29.

The snow is badly drifted in places and the ground is almost bare in the plowed fields. Winter grain has been fairly well covered during the coldest weather, as the cornstalks in the wheat plots and the stubble in the rye plots and wheat nursery have caught enough snow to supply good protection for the present.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith) (Jan. 31)

The uniform winter-hardiness nursery has a light covering of snow. As it was well hardened off the severe weather should not cause too much winterkilling.

The maximum temperature was 36° on the 11th; minimum, 25° on the 30th. A total of 0.68 of an inch of precipitation was recorded in the form of several snowfalls.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (Feb. 1)

The weather for the greater part of January was mild and there were occasional light snowfalls. A severe dust storm on the 11th was followed by a short period of cold weather. The last few days of the month were very cold and the ground was covered with about 3 inches of snow.

Temperatures: Maximum, 53° on January 25; minimum -30° on the 30th; mean 19°. Precipitation: 0.58 of an inch.

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Agricultural Experiment Station, Moscow (Wheat Improvement, V. H. Florell) (Jan. 23)

Moderately high yields of grain were produced in the cereal experiments in 1931, notwithstanding a deficiency in moisture during the growing season. Droughty conditions in the latter part of May and early in June seriously threatened to reduce yields but good rains in the latter part of June, followed by cool weather, resulted in satisfactory yields. Both winter and spring wheats produced an exceptionally good quality of grain and heavy bushel weights. Spring oats were of good quality and test weights were slightly above normal. A number of barley varieties tended to be "shoe-peggy." The following tables present the yields and test weights of wheat, oats, and barley varieties grown in plots.

Average yields of wheat, oats, and barley varieties grown in triplicate 1/40-acre plots at Moscow, Idaho, 1931. Border drill rows were cut away before harvest so that yields were obtained from 1/46.6-acre plots

Winter Wheat:

Variety	C.I. No.	Idaho No.	Yield (Bu. per acre)	Test weight (Lbs. per bu)
Fortyfold x Federation	8247	511	65.4	60.7
Triplet	5408	549	64.6	62.4
Jenkin	5177	123	63.6	61.5
P1068 x Preston	11452	499	63.3	62.3
Mosida	6688	156	62.0	61.9
Fortyfold sel. 54	10064	552	61.5	61.6
Turkey	1571	103	60.8	63.2
Crimean sel.	7366	476	60.1	62.6
Albit	8275	525	60.0	61.7
Hybrid 128	4512	533	59.4	61.2
Kharkof	1442	551	59.1	63.0
Sherman	4430	474	57.7	62.3
Red Russian	4222	101	53.1	60.9
Red Russian (white kernel sel.)	----	---	52.0	58.7
Turkey x Florence	10080	494	51.4	62.5
Fortyfold (Hybrid)	----	529	51.1	60.6
Ridit	6703	550	50.7	62.9

Spring Wheat:

Jenkin	5177	123	37.9	61.0
Pusa No. 4	8899	533	36.4	62.0
Onas	6221	605	35.6	58.0
Little Club	4066	128	35.2	61.0
Federation	4734	461	33.9	59.0
Federation[a]	4734	606	33.1	58.0
Regenerated Defiance	3703	129	33.1	60.0
Pacific Bluestem	4067	124	33.0	61.0
White Federation	4981	609	32.0	60.0
Baart	1697	127	31.8	62.8
Red Bobs (sel. light)	----	535	31.6	60.8
Sonora-Altar x Cedar VII 875	----	534	31.6	63.5
Baart[b]	1697	608	31.3	62.5
Reward	8182	526	29.1	62.8
Bunyip	5125	482	28.6	61.3
Marquis[b]	4158	607	28.6	62.2
Red Bobs	6255	481	28.6	61.0
Hard Federation	4733	460	28.5	60.7
Marquis Sask. No. 70	----	532	28.4	61.8
Supreme	8026	527	28.1	60.5
Alberta No. 222	8854	517	27.8	61.0
Red Bobs (sel. dark)	----	536	27.5	61.0
Marquis	3276	126	26.7	62.5
Quality	6607	516	23.6	61.5

[a] Seed from Aberdeen, Idaho.

[b] Seed from Pendleton, Oregon.

Spring Oats:

Variety	C.I. No.	Idaho No.	Yield (Bu.per acre)	Test weigh (Lbs.per bu
Markton	2053	1170	78.2	39.0
Iowar	847	1178	77.2	38.5
Garton	----	1179	75.5	39.5
Kanota	839	1176	73.8	40.0
Eagle	----	1184	73.5	35.0
Idamine	1834	1165	71.9	39.5
Victory	1654	1153	71.8	37.5
Nova	2274	1174	71.6	37.5
Star	2753	1183	71.6	36.0
Golden Rain	1718	1155	70.6	38.0
Richland	787	1154	69.2	36.0
Banner	1191	1172	64.6	36.0
Abundance	1970	1171	64.6	36.5
Wasa	2273	1167	62.4	37.5
Silver	2269	1175	61.6	38.5
Crown	2022	1177	61.4	39.5
Swedish Select	1627	1160	60.7	38.5
Corriente	2148	1182	54.4	32.5
White Tartar	1871	1180	52.5	36.5
Laurel (Hull-less)	2231	1181	25.8[a]	50.0

a/ Calculated at 49 pounds per bushel

Spring Barley:

Trebi	936	2073	78.6	48.0
Ezond	5064	2112	74.7	48.5
Ace	1853	2109	68.9	51.0
Han River	206	2072	67.3	47.0
Baker	975	2114	65.7	48.0
Baker	----	2076	63.1	49.0
Peruvian	935	2075	62.8	46.5
Hannchon 229	531	2113	62.0	53.0
Ottawa No. 7	----	2107	61.7	46.5
White Smyrna	910	2074	60.8	49.5
Spartan	5027	2106	58.9	52.0
Winter Club	488	2001	58.1	48.0
Colsess	2792	2080	56.6	43.0
Faust	4579	2105	45.2[a]	62.5
Glabron	4577	2110	56.0	49.0
Charlottetown 80	2732	2118	51.1	52.5
Union Beardless	----	2108	48.4	40.5
Velvet	4252	2111	47.1	48.5

a/ Calculated at 60 pounds per bushel

Winter Barley:

Idaho	----	549	83.9	53.0
Winter Club	488	2001	78.5	51.3

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward) (Feb. 1)

The weather continued to be favorable throughout January. A total of 2.25 inches of precipitation was recorded in the form of snow. In the mountains the snow measures from 5 to 7-1/2 feet in depth.

Moderate weather and the 3-foot snow cover should cause very little winterkilling of winter wheat in this section.

ARIZONA

Agricultural Experiment Station, Tucson (Cereal Agronomy, A. T. Bartel) (Jan. 12)

In December the maximum temperature was 75°; minimum, 23°. The precipitation totaled 0.42 of an inch. The first frost of the season occurred on November 20.

The seeding of small grains in all the varietal experiments has been completed. Due to the abundant rainfall in November, no irrigation was necessary to get the soil into condition for sowing and to germinate the seed. The wheat varieties were sown on November 27, and very good stands resulted.

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

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Vol. 24 March 10, 1932 No. 3
Personnel (Feb. 11-March 10) and Field Station (Feb. 1-29) Issue

PERSONNEL ITEMS

Mr. O. S. Fisher will leave Washington on March 15 for the drought-stricken areas of North Dakota, South Dakota, and Montana in the interests of seed supply work.

Dr. H. V. Harlan left Washington on March 10 for points in Illinois, Arizona, California, Utah, and Idaho to take notes on cooperative barley nurseries and consult with experiment station officials.

Dr. George Janssen, assistant professor of agronomy and assistant agronomist at the College of Agriculture and the Agricultural Experiment Station of the University of Arkansas, passed away at Fayetteville, Ark., on January 31, 1932. Dr. Janssen was agent of the Division of Cereal Crops and Diseases in 1925-26 when he was associated with Dr. J. G. Dickson in cooperative wheat scab investigations at Madison, Wis.

Mr. J. W. Jones and Mr. M. A. McCall made a 10-day trip in February to points in Arkansas, Louisiana, and Texas in the interests of cooperative rice investigations.

VISITORS

Mr. A. B. Alexandrov, agronomist of the Seed Trust of the U. S. S. R., Moscow, and Mr. M. I. Turnikow, agronomist of the Institute of Irrigated Agriculture, Moscow, were visitors in the Division during the week of March 7. Accompanying them was Mr. S. M. Senko, consulting agronomist of the Amtorg Trading Corporation, 261 Fifth Avenue, New York City, who is acting as interpreter for the Russian visitors.

MANUSCRIPTS AND PUBLICATIONS

11 A manuscript entitled "The Proportions of Glucose and Fructose in Corn Tissues," by V. H. Morris and J. D. Sayre, was approved on February 11 for submittal to Plant Physiology.

12 A manuscript entitled "Studies on Physiologic Specialization in Puccinia triticina," by C. O. Johnston and E. B. Mains, was submitted on February 20 for publication in the Technical Bulletin series.

13 A manuscript entitled "Helminthosporium sigmoideum Cav., the Conidial Stage of Sclerotium oryzae Catt.," by E. C. Tullis, was submitted on February 29 for publication in the Journal of Agricultural Research.

The article entitled "The Cereal Rust Fungi: Their Nature and Origin," by M. N. Levine, appears in Hassadeh [Palestine] 12(1-2): 1-7;(3): 87-95. 1931.

The article entitled "Inheritance of Resistance in Oats to Ustilago levis," by F. A. Coffman, T. R. Stanton, B. B. Bayles, G. A. Wiebe, R. W. Smith, and V. F. Tapke, appears in the Journal of Agricultural Research 43(12): 1085-1089. December 15, 1931. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa, North Dakota, Montana, Idaho, and Oregon agricultural experiment stations.)

The paper entitled "A Study of the Physiologic Forms of Kernel Smut (Sphacelotheca sorghi) of Sorghum," by L. E. Melchers, C. H. Ficke, and C. O. Johnston, appears in the Journal of Agricultural Research 44(1): 1-11, figs. 1-2. January 1, 1932. (Cooperation between the Division of Cereal Crops and Diseases and the department of botany and plant pathology of the Kansas State Agricultural College.)

The paper entitled "Inheritance of Height in Broomcorn," by John B. Sieglinger, appears in the Journal of Agricultural Research 44(1): 13-20, figs. 1-4. January 1, 1932.

The paper entitled "Dehiscence of the Boll of Linum rigidum and Related Species," by A. C. Dillman and J. C. Brinsmade, Jr., appears in the Journal of Agricultural Research 44(1): 21-27, figs. 1-3. January 1, 1932

The paper entitled "Heterothallism and Hybridization in Telletia tritici and T. levis," by H. H. Flor, appears in the Journal of Agricultura Research 44(1): 49-58. January 1, 1932. (Cooperation between the Division of Cereal Crops and Diseases and the Washington and Oregon agricultural experiment stations.)

Technical Bulletin No. 260 entitled "Results of Seed-Treatment Experiments with Yellow Dent Corn," by James R. Holbert and Benjamin Koehler, was received from the Government Printing Office on February 19. (Cooperation between the Division of Cereal Crops and Diseases and Funk Bros. Seed Co. and the Illinois Agricultural Experiment Station.) (Plates 1 and 2 can be purchased separately from the Government Printing Office.)

Colorado Agricultural Experiment Station Bulletin 383 entitled "Proso or Hog Millet in Colorado," by J. F. Brandon, Alvin Kezer, J. J. Curtis, and D. W. Robertson, was received in February. (Cooperation between the Divisions of Cereal Crops and Diseases and Dry Land Agriculture and the Colorado Agricultural Experiment Station.)

The manuscript entitled "Physiologic Specialization as a Factor in the Epidemiology of Puccinia graminis tritici," by James M. Wallace, appears in Phytopathology 22(2): 105-142, figs. 1-4. February, 1932. (Cooperation between the Division of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

A review, by H. B. Humphrey, of the new book entitled "Plant Physiology," by Edwin C. Miller, appears in Phytopathology 22(2): 197-200. February, 1932.

ADMINISTRATIVE NOTES

Vouchers

In a recent memorandum to Heads of Divisions the Chief of the Bureau of Plant Industry refers to a letter from the Comptroller General to the Secretary of Agriculture, calling attention to the fact that two vouchers for the same expense item had been submitted by one of the Bureaus for preaudit. Both vouchers had been examined and posted and certified as correct by the Bureau accounting office.

In order to avoid the possibility of such an occurance in the Bureau of Plant Industry all employees must prepare and submit Form 1013 and Form 1034 vouchers in duplicate. Carbon copies should be prepared on the yellow forms marked "Memorandum" and sent, together with the originals, to the Division of Cereal Crops and Diseases. The memorandum copies should not be signed.

If yellow memorandum forms are not on hand, a supply should be requested from this Division.

Expense accounts should not be submitted in duplicate.

H. S. Smith.

HARD SPRING WHEAT CONFERENCE

A conference of representatives of the agricultural experiment stations in the hard spring wheat region met at Fargo, N. Dak., on February 15 to consider results obtained in the cooperative spring-wheat improvement program and to make plans for the future. The Division of Cereal Crops and Diseases was represented by Messrs. S. C. Salmon and J. Allen Clark.

It was decided to continue the list of varieties in uniform plot experiments as heretofore, except that Double Cross (Minn. No. 2303) is to be substituted for Nodak.

Arrangements were made to inaugurate uniform yield nurseries at about 20 stations and to grow not more than 25 varieties and hybrid strains.

It was agreed to resume the uniform bunt nurseries at 8 stations and to test 50 varieties and strains for their reaction to local collections of bunt.

Greenhouse and Laboratory Facilities at the Arlington Experiment Farm, Rosslyn, Va.

The completion of the new greenhouse and laboratory for cereal-virus-disease and wheat-physiology investigations has provided 2500 square feet of additional space under glass for cereal experiments at the Arlington

Experiment Farm. The three greenhouse buildings built by the Division of Cereal Crops and Diseases contain a total of about 15,500 square feet under glass in six different sections. Greenhouse bench space rented from the Arlington Experiment Farm provides an additional area of about 3,500 square feet which is used for experiments with cereal rusts, wheat, grain sorghum, rice and flax. The total area under glass used by the Division exceeds 19,000 square feet.

The new greenhouse, completed in the autumn of 1931, is divided into four units of 625 square feet each. Each of these units is equipped with thermostatic temperature controls for use in the winter months. The adjoining laboratory and office quarters occupy a floor space 26 x 74 feet with a second floor 26 x 36 feet which can also be used for a laboratory when needed. The building is equipped throughout with copper screening to comply with quarantine requirements and to prevent the dissemination of cereal viruses by insects. In addition, there are four portable glass houses, each 7 x 8 feet, also equipped for temperature control during the winter months. More exact requirements are met by eight outdoor glassed chambers in which low temperatures can be maintained throughout the year by the well-controlled mechanical refrigerators with which they are equippe

The greenhouse and laboratory quarters in the cereal-pathology greenhouse formerly occupied by the virus disease project are now utilized largely for cereal smut investigations. The cereal-pathology plant consists of three sections under glass, each 25 x 80 feet, together with laboratory and office quarters of approximately 2,000 square feet. The greenhouse sections are subdivided into units, two of which are equipped for automatic temperature control. One unit contains 18 tanks for experiments with controlled soil temperatures, the low temperatures being obtained by a mechanical refrigerating system. Another unit contains a set of chambers in which the humidity is controlled. The basement of this building contains several chambers with automatically controlled temperatures. In this basement there is also the refrigerating equipment, including the machine used for lowering humidity of air, and a boiler and large pressure tank for sterilizing soil by steam.

The corn greenhouse consists of two sections, each 35 x 100 feet. One of these is divided into four units to permit the varying of the temperature and light. Two of the four units of this section are used for growing wheat, oats, and barley. The second section is provided with buried steam pipes for sterilization of the entire soil area. The laboratory and office quarters attached to the corn greenhouse occupy approximately 3,500 square feet.

Two of the rented greenhouse units contain culture chambers for rust propagation, and another is provided with concrete tanks for growing submerged rice.

The value of a greenhouse in a cereal-breeding program lies chiefly in speeding up operations by growing an additional crop during the winter. In pathological and physiological studies several plantings often can be made during the year in experiments in which the crop is not carried to maturity. Late-maturing varieties which would be killed by frost in the field can be matured in the greenhouse. Some tropical hosts of virus diseases can not be grown at the Arlington Farm except in the greenhouse. The controlled temperature and light equipment has led to numerous valuable discoveries regarding the development of cereal plants and cereal diseases.

In addition to the greenhouse buildings mentioned, the Division of Cereal Crops and Diseases has a one-story concrete building 32 x 40 feet, erected in 1926 and used chiefly as a cereal smut laboratory. The small grain agronomy projects occupy a space of 30 x 54 feet in a 2-story building known as the "cereal shed" built about 15 years ago.

A new threshing shed, erected in cooperation with the Division of Forage Crops and Diseases, was completed in 1931. This is a frame structure 36 x 62 feet, so constructed that if desired the bundles from the nursery may be hung indoors. The completion of this structure permitted the remodeling of the cereal shed formerly used for threshing by the two Divisions, and consequently, greatly relieved both laboratory and office congestion.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

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HUMID ATLANTIC COAST AREA (South to North)

VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor) (March 4)

With the exception of fall-sown oats, the small grains are in poor condition. Lack of soil moisture at seeding time caused poor and irregular germination, and fall growth was below average. The principal injury has been and continues to be done by aphids. The aphids have killed more wheat plants than have been killed by low temperatures during any of the past ten winters. Rye, wheat, and barley in the order named appear to be the favorite hosts for the green bugs. Oats so far have been lightly attacked except in spaced seedings.

The lowest temperature this winter has been 21°, and in each of the winter months the maximum has reached 70° or higher. An occasional jointed plant can be seen in both wheat and rye plots, but growth is very irregular.

Greenhouse conditions on the whole have been favorable. As usual, considerable sterility has occurred in the early heading wheats. The soft red winter wheats such as Mediterranean and Harvest Queen headed during February in the greenhouse at a time favorable for hybridizing.

HUMID MISSISSIPPI VALLEY AREA (South to North)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins) (March 2)

Very mild weather prevailed in February. The maximum temperature was 81°; the minimum was 35°. On five days the temperature was 80° or above. On some nights the minimum did not go below 60 or 68°.

The precipitation was 5.05 inches; this is 1.76 inches more than for February, 1931.

Field work included plowing, ditching, and spading. Pasture grasses were seeded on the permanent pasture plots.

Among the Station visitors were: M. A. McCall and J. W. Jones, Washington, D. C.; R. W. Wyche and E. S. Landry, Beaumont, Tex.; C. T. Dowell, Director of the Louisiana Experiment Station, and J. P. Gray, associate agronomist, Louisiana Agricultural Experiment Station.

MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler) (Feb. 29)

Data from the cooperative corn-breeding investigations for 1931 recently have been compiled. In the yield tests of double crosses in comparison with a number of standard varieties and commercial hybrids, conducted at 6 points distributed over the corn-growing regions of the State, double-cross hybrids consistently outyielded the commercial varieties. The margin of superiority of the best hybrid over the check variety (Reid Yellow Dent) varied from 30 to 60 per cent on different fields. Some of the commercial varieties also outyielded Reid Yellow Dent by a considerable margin.

The winter has been exceptionally open, and no damage whatever has been done to winter wheat so far. Favorable weather during the past few days has afforded opportunity to make an early seeding of some spring-sown Triticum and Secale species to be used in genetic studies. Parts of the oats and barley nurseries will be sown shortly if favorable weather continues.

GREAT PLAINS AREA (South to North)

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (Feb. 15)

The precipitation for the first part of February totaled 1.54 inches.

Field work was possible from the 8th to the 13th, and farmers were able to sow most of their spring grains. The spring-oat nursery, the oat-varietal plot experiment, and about 250 head rows of new selections were sown on February 8. Fall-sown small grains are making too vigorous growth and cool weather should be beneficial in holding back spring growth.

(March 1)

The maximum temperature for February was 85°; minimum, 25°; mean, 55.1. The precipitation totaled 4.15 inches. The precipitation since January 1 totaled 11.27 inches - 7.07 inches above normal.

The crown-rust and uniform wheat stem-rust nurseries were sown on February 29, although the ground was very wet.

Barley has been growing rapidly for about six weeks and is now starting to head. This is more than a month earlier than its normal date of heading. Fulghum oats and early wheats also show signs of heading in a few weeks. Fruit trees are in full bloom.

From February 22 to 28, the writer made a trip to Amarillo and vicinity to inspect the wheat nursery and a few of the cooperative wheat-varietal experiments in that section. Winter wheat is in good condition for the most part. The winter was cold enough to prevent rapid growth and there is a sufficient supply of winter moisture. In a few sections wheat is rather short, due to late sowing and lack of moisture. The wheat nursery at Price Memorial College, Amarillo, is in ideal condition. The varietal experiment is in good condition except that a number of varieties have

light stands because of poor seed. A varietal experiment with spring oats and one with spring barley was sown at Amarillo.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger) [March 1]

The last part of February was unseasonably mild. At present, apricots are blooming and peach buds are swelling. It is not likely that this fruit will escape freezing. The minimum temperature for February was 15° F. on the 4th, The maximum, 82° F. on the 9th. The precipitation for February in the form of six showers and snow flurries totaled 0.82 of an inch.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens) [March 1]

The mild winter to date has been favorable for winter wheat. It has been especially mild the past week, and winter-wheat varieties have been making vigorous growth. A light infection of leaf rust has been noted at intervals during the winter, and Septoria tritici is rather prevalent, particularly on early sown winter wheat. No winterkilling has occurred in fall-sown barley varieties in the nursery or in the uniform oat winter-hardiness nursery.

KANSAS

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows) [Feb. 20]

The new laboratory and office for Federal plant pathological workers in Dickens Hall have been completed. The equipment was furnished jointly by the State and Federal governments.

Some items of the equipment are an electric refrigerator, a drying oven, a large autoclave, a transfer chamber large enough for two to work in, abundant table space, and several storage cabinets.

Last summer two new pieces of field equipment intended to facilitate both seeding and harvesting of wheat varieties were added to the wheat foot-rot project at Manhattan. The seeding equipment consists of a 5-disk drill, with a fertilizer attachment, suitable for sowing wheat between corn rows. This is drawn by a small garden tractor. The whole unit is carried from field to field on a 4-wheeled trailer drawn behind a light Ford truck. The outfit is loaded and unloaded by its own power. This unit enables one to sow much larger areas and at many more places than is possible by hand. In addition the effect of fertilizer on disease may be easily studied. Last summer varietal and fertilizer tests for take-all foot rot were established in 12 places in central Kansas and northern Oklahoma. The varieties were sown in 150-foot rows. Long rows give more assurance that each variety will pass through a disease spot in the field.

These long rows require rather large quantities of seed. The work of harvesting such quantities by hand would be excessive. Accordingly, a small harvesting machine has been devised with a side blade which cuts one row at a time. The unique feature of this harvester is the reel which throws the culms into a basket convenient for hand binding.

COLORADO

United States Dry-Land Field Station, Akron (Wheat Improvement, J. J. Curtis) (March 2)

There was a high wind on February 10 and 11, the 48-hour average velocity having been 16.6 miles per hour. This caused some soil blowing on fields adjoining the Station but none was observed on the Station.

The Fourth Annual Feeders Day was held here on February 18. About 200 farmers gathered to observe the pig and lamb feeding experiments.

Grohoma seed is being sold by salesmen in this region at prices varying from 15 cents to $2.00 per pound. Many extravagant claims concerning it are being made.

Winter wheat in the varietal and nursery experiments has not yet emerged. However, there appears to be enough moisture to bring it up whenever the weather is warm enough.

The maximum temperature for the month was 70° on the 27th; minimum, zero on the 3rd; the precipitation totaled 0.25 of an inch.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (March 1)

A record high temperature for February was reached on February 27 when a maximum of 65° was recorded. From February 25 to 28, the snow melted very rapidly. Much of the moisture doubtless soaked into the ground, though a considerable portion ran off. Water from the melting snow flowed over the ice on the Heart River to a depth of 5 to 6 feet. The water soon subsided and the ice has been coming down only a little at a time and is not likely to cause trouble. The ice on the Missouri River between Mandan and Bismarck is still solid. The first half of February was exceptionally cold, so that the mean temperature for the entire month was about normal. The minimum temperature in February was -16° on February 2 and 13. Some snowfall was recorded on 12 days in February, but the total precipitation for the month amounted to only 0.19 of an inch. Snow is falling again today and the ground, which was completely bare yesterday, again has a white covering.

The flax plants in the greenhouse are nearly all in bloom and give promise of setting a good crop of seed.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (Feb. 29)

Steady winter weather prevailed from the time of the blizzard, January 11 and 12, until February 22. About that time it turned warmer and became extremely warm in a few days, the maximum temperature being 66° on February 27. The snow, which had been several inches deep on the level and two feet or more in drifts, disappeared almost entirely between the 24th and 27th. Fields which were covered with snow and slush a few days ago are now dry and dusty on the surface. Today a brisk wind has filled the air with dust from fields that were fallowed last summer.

The winter wheat and rye in plots and nursery were protected by snow from about the first of January until the last of February. When first uncovered by the melting snow last week this grain looked almost as green and had almost as good a stand as in the fall. The final percentage of survival will depend largely upon the weather and moisture conditions in the next two months.

During the rapid thaw of last week some erosion occurred in the fields and some moisture was lost by surface run off, but the ground thawed out enough so that considerable water soaked into the soil.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(Feb.29)

The uniform winter-hardiness nursery, which was covered with snow up to last week gives promise of some survival in almost every row. The unseasonably warm weather of the past week melted all snow on level land.

The precipitation for February totaled 0.99 of an inch, which is 0.37 of an inch above normal. The mean temperature was 3.5°.

It is anticipated that some 400 farmers of Cavalier County will need seed loans for the 1932 crop.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (March 1)

The weather in February was characterized by alternate snow storms and wind intermingled with warm weather. Snow totaling 0.20 of an inch of precipitation fell in the first half of the month but this was all melted during an unusually warm period from the 16th to the 28th. The maximum temperature was 70°, which is 4° higher than was ever recorded here in February.

Winter wheat appears to be in good condition and started some growth during the recent warm weather. This may result in some killing if the weather should soon turn cold. There was considerable soil blowing during the month.

Northern Montana Branch Station, Havre (M. A. Bell) [Feb. 25]

Yields of 18 varieties of oats grown on plowless fallow in triplicated 50th-acre plots at the Northern Montana Branch Station, 1931.

Variety	C. I. No.	Yield (Bu. per acre)
Markton	2053	22.9
Selection 357-172	----	19.3
Silvermine	659	18.8
Green Russian sel.	2343	18.8
Idamine	1834	18.2
Selection 357-173	----	18.2
Gopher	2027	18.2
Iogold	2329	18.2
Swedish Select	134	16.7
Golden Rain	493	16.7
Anthony	2143	16.7
Havre No. 4	----	15.6
Kherson	459	15.6
Gerlach	2244	15.1
White Russian	551	15.1
Upright	2142	14.1
Banner	1997	13.5
Victory	560	6.8a/

a/ Yield reduced because of heavy smut infection.

WESTERN BASIN AND COAST AREAS (North to West and South)

OREGON

Pendleton Field Station, Pendleton (Cereal Agronomy, J. F. Martin) (Feb. 29)

The weather for the past week has been favorable for plant growth although snow is still visible in the mountains near by. Much of the fall-sown wheat did not emerge until recently. However, stands on the Station and in adjoining fields are satisfactory. Very little winter-killing occurred, but some of the tender varieties were injured in spots where they were not protected by snow. The temperature was below freezing nearly every night, but fell below zero only three times. The minimum temperature was -9° F. on February 3.

Considerable erosion is evident on the hilly lands in this section but on the Station only a few plots in the furrow-drill experiment were injured.

The precipitation for February, mostly in the form of rain, totaled 1.15 inches.

Agricultural Experiment Station, Corvallis (Foot Rots of Wheat, Roderick Sprague) [March 4]

On February 24 and 25 the first trip of the season into the region near The Dalles, Oreg., was made. The heavy snow was fast disappearing and for the first time in several years the ground was saturated and there was considerable run off. Most of the sown fields on the lower levels

were as bare as fallow, but above 1,700 feet elevation, winter wheat was in the second or third leaf stage. If the weather is favorable, growers expect a fair crop, as moisture is again plentiful.

Rain gauges were installed both on Tygh Ridge, Wasco County, Oreg., and on High Prairie, Klickitat County, Wash. The plot on High Prairie was far ahead of the surrounding field and if no late winterkilling occurs good results in the foot-rot studies should be obtained.

The plot at Corvallis, inoculated last fall with diseased soil, was beginning to show a small percentage of infection on February 20.

On February 15 the plot on acid soil in the Alsea Valley showed wide variation in winter survival, with many of the wheats and spring oats almost totally vanished. Septoria leaf spot and Helminthosporium leaf spot of oats again were prevalent. Winter Turf (Gray Winter) oats and some of the soft red wheats looked promising.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward) (March 1)

Favorable weather prevailed during February. Minimum temperatures of less than zero occurred on only four days. The mean for the month was 25.5° F. A precipitation of 1.12 inches added to the abundant supply of December and January should insure sufficient irrigation supply for the coming season.

On March 1 approximately two feet of heavy snow remained on the fields of Cache Valley. The precipitation in general over the State has been high.

Most of the nursery seed for 1932 has been prepared and plans for seeding have been made. In northern Utah spring work may be somewhat delayed, but most of the snow has disappeared in central and southern Utah.

Biggs Rice Field Station, Biggs (Rice Agronomy, L. L. Davis) (Feb.10)

Average yield of Caloro rice grown in plots replicated 3 times in fertilizer experiments at the Biggs Rico Field Station, 1931

Fertilizer Treatment	Rate of application (Lbs. per acre)	Yields per acre (Lbs.)	Average increase or decrease (Lbs.)
None (check)	----	4,000	----
Acid Phosphate	350	3,855	-145
Sulphate of Potash	120	4,135	+135
Acid Phosphate)a/	350	4,268	+268
Sulphate of Potash)	120		
Ammonium Sulphate)	150	4,630	+630
Acid Phosphate)	350		
Ammonium Sulphate)	150	4,705	+705
Sulphate of Potash)	120		
Ammonium Sulphate)	150		
Acid Phosphate)	350	5,000	+1000
Sulphate of Potash)	120		

a/ Average yield from two plots.

Average yield of rice grown in plots replicated 4 times in an experiment on the rate of application of ammonium sulphate at the Biggs Rice Field Station, 1931

Variety	Rate of application (Lbs. per acre)	Yield per acre (Lbs.)	Av. increase per acre (Lbs.)
Caloro (midseason)	None	4,444	---
Do	100	5,130	686
Do	150	5,666	1,222
Do	200	5,145	701
Colusa (1600)(Early)	None	3,641	---
Do	100	4,159	518
Do	150	4,459	818
Do	200	4,665	1,024

Average yield of 9 midseason varieties of rice grown by continuous submergence in plots replicated 4 times at the Biggs Rice Field Station, 1931

Variety	Yield per acre (Lbs.)
Selection No. 233	4,755
Selection No. 138	4,635
Selection No. 127	4,586
Selection No. 357	4,545
Selection No. 176	4,455
Caloro[a]	4,390
Improved Caloro (Sel.175)	4,270
Early Wataribune	4,084
Selection No. 361	4,058

a/ Average of six plots.

Average yield of rice varieties, principally introductions from Japan, grown in replicated plots at the Biggs Rice Field Station, 1931

Group and variety	C. I. No.	Yield per acre (Lbs.)
Early Group:		
Kina No. 195	5684	4,532
Yeatsu	5715	3,850
Mito (C. N. 451)	----	3,784
Hattan No. 2 (C. N. 511)	----	3,696
Colusa	1600	3,674
Selection No. 287	----	3,674
Chinese Originario (C. N. 422)	----	3,630
Selection No. 289	----	3,630
Moriwase	5698	3,586
Onsen	----	3,388
Takatsu (C. N. 622)	----	3,146
Midseason group:		
Caloro[a]	1561-1	4,390
Nakata Shinriki (C. N. 150)	----	4,334
Kairyo Fukuyama (C. N. 1054)	----	4,158
Gin Bozu (C. N. 579)	----	3,938
Kokuryo Miyako (C. N. 626)	----	3,872
Kokuryo Miyako (C. N. 446)	----	3,740
Shiro Beniya	5758	3,674
Tosa Bozu	5747	3,652
Sugaippon	----	3,586
Shiro Beniya (C. N. 635)	----	3,278
Kairyo Shinriki (C. N. 68)	----	3,234

[a] Average of six check plots.

Average yield of hybrid selections, Early 1600, Colusa, and Caloro rice grown in replicated plots at the Biggs Rice Field Station, 1931

Group and variety	Yield per acre (Lbs.)
Very early group:[a]	
Nero Vialone x Caloro 221A165-8	3,240
Nero Vialone x Caloro 221A165-3	3,240
Nero Vialone x Caloro 221A190-5	3,120
Nero Vialone x Caloro 221A165-4	2,960
Nero Vialone x Caloro 221A165-9	2,800
Nero Vialone x Caloro 221A168-2	2,760
Early 1600 ---------	2,520
Nero Vialone x Caloro 221A83-8	2,440

[a] Average of 2 plots.

Early group: [b]	Yield per acre (Lbs.)
Caloro (midseason)	4,390
Nero Vialone x Caloro 221A54-1	4,268
Nero Vialone x Caloro 221A54-2	4,246
Nero Vialone x Caloro 221A54-6	4,224
Nero Vialone x Caloro 221A51-8	3,872
Nero Vialone x Caloro 221A54-8	3,850
Nero Vialone x Caloro 221A54-9	3,850
Caloro x Colusa 231A, plant 12	3,850
Nero Vialone x Caloro 221A54-7	3,806
Caloro x Colusa 231, plant 14	3,740
Colusa	3,674
Nero Vialone x Caloro 221A154-5	3,498

[b] Average of 3 plots.

ARIZONA

Agricultural Experiment Station, Tucson (Cereal Agronomy, A. T. Bartel) (March 5)

The mean temperature for January, 1932, was lower than for any month since this weather station was started in 1891. The grain in the cereal nursery made almost no growth during January.

The mean maximum temperature in February was 67.7°; mean minimum, 39°. The precipitation totaled 1.27 inches.

The wheat in the October 20 sowing was somewhat damaged by frost in January. Since the warmer weather in February the varieties continued to grow and several now stand over 20 inches high.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

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Vol. 24 April 10, 1932 No. 4
Personnel (March 11 - April 10) and Field Station (March 1 - 31) Issue

PERSONNEL ITEMS

Mr. C. E. Chambliss left Washington on April 9 for points in South Carolina, Georgia, Florida, Alabama, Louisiana, and Texas in the interests of cooperative rice investigations.

Mr. A. C. Dillman left Washington on March 26 for Minneapolis, Minn., to attend a meeting of the officers of the Flax Institute of North America on March 28. He made a report of the cooperative investigations carried on with the four principal flaxseed-producing States. He also conferred with chemists of the Archer-Daniels Midland Company in regard to the results of chemical analyses of flaxseed samples in relation to the variety of flax and the geographic source of the seed. Mr. Dillman later conferred with officials at University Farm, St. Paul, in regard to cooperative flax experiments.

Dr. J. R. Holbert arrived in Washington on April 1 to confer with Division and Bureau officials regarding corn-disease investigations and to work on manuscripts on corn diseases. Dr. Holbert will be in Washington two or three weeks.

Dr. M. T. Jenkins left Washington on April 7 to return to his headquarters at Ames, Iowa. He was authorized to stop en route at Wooster, Ohio, to confer with officials of the Agricultural Experiment Station.

Mr. F. D. Richey spent 4 days, beginning April 4, at Wooster, Ohio, in the interests of cooperative corn experiments.

A new species of Helicoceras has been isolated by Dr. E. C. Tullis from kernels of Chinese rice sent to him from Texas. This species has been described and named H. oryzae Linder and Tullis, n. sp. by Prof. David H. Linder in his article entitled "The Genus Helicoceras," in Annals of the Missouri Botanical Garden 18: 1-8. February, 1931.

VISITORS

Mr. T. H. Harrison, lecturer in botany and plant pathology from Hawkesbury Agricultural College, Richmond, New South Wales, who has a traveling fellowship in the United States, was a visitor in the Division on March 28. Mr. Harrison has the degree of B. Sc. Agr. from the University of Sydney, Sydney, Australia.

Dr. B. F. Lutman, professor of plant pathology of the University of Vermont, was a visitor in the Division on March 10. Dr. Lutman had recently returned from Spain.

Dr. John H. Parker, who is acting professor of plant breeding for 1931 32 at Cornell University in the absence of Dr. H. H. Love in China, was a visitor in the Division while on a vacation in Washington during Easter wee

MANUSCRIPTS AND PUBLICATIONS

14 The manuscript entitled "The Relative Variability of Corn Crosses and Varieties," by Lloyd A. Arnold and Merle T. Jenkins, was approved on March 1 for submittal to the Journal of the American Society of Agronomy.

15 A manuscript entitled "Studies on Physiologic Specialization in Tilletia tritici and T. levis in the Pacific Northwest," by H. H. Flor, was submitted on April 2 for publication in the Journal of Agricultural Research.

16 A manuscript entitled "Further Cytological Studies of Heterothallism in Puccinia graminis," by Ruth F. Allen, was submitted on April 2 for publication in the Journal of Agricultural Research.

17 A manuscript entitled "The Cold Resistance of Pacific Coast Spring Wheats at Various Stages of Growth as Determined by Artificial Refrigeratio" by J. Foster Martin, was approved on April 8 for submittal to the Journal of the American Society of Agronomy.

The article entitled "Inheritance of Resistance to Bunt, Tilletia tritici, in Crosses of White Federation with Turkey Wheats," by Fred N. Briggs appears in the Journal of Agricultural Research 44(2): 121-126, 1 fig. January 15, 1932. (Cooperative investigations between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

The article entitled "Physiologic Races of Ustilago levis and U. avena on Red Oats," by George M. Reed and T. R. Stanton, appears in the Journal o Agricultural Research 44(2): 147-153, 1 fig. January 15, 1932. (Cooperati investigations between the Division of Cereal Crops and Diseases and the Brooklyn Botanic Garden, Brooklyn, N. Y.)

The article entitled "Chemical Composition of Rice and Its Relation to Soil Fertility in China and Japan," by Jehiel Davidso. and C. E. Chambliss, appears in Science n. s. 75(1914): 294. March 11, 1932.

The article entitled "Some Effects of High Temperature on Polyploidy and other Variations in Maize," by L. F. Randolph, appears in the Proceedings of the National Academy of Sciences of the United States of America 18(3): 222-229. March, 1932. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Cornell (N. Y.) Agricultural Experiment Station.)

Technical Bulletin No. 293 entitled "Factors Affecting the Development of Loose Smut in Barley and its Control by Dust Fungicides," by R. W. Leukel was received from the Government Printing Office on April 5.

ADMINISTRATIVE NOTES

Recent Comptroller's Decisions

There are probably few bureau accounting officers in the Department of whom the question has not been at some time asked whether a Department employee using his personally owned car on the mileage basis must reduce his claim for mileage in the event he carries a passenger or passengers in his car, as is required by the Standardized Government Travel Regulations in the case of automobile travel on the actual expense basis, and also in connection with berths in pullman, rooms at hotel, etc., shared by others. The answer has ordinarily been that the regulations do not call for such reduction where the mileage basis is used, and that the Comptroller General seems not to have laid down any requirement to that effect. This, however, was not completely reassuring, and many Department employees who have carried passengers on their official trips have done so with distinct misgivings. In the future, however, these doubts may be discarded. By A-39963 of December 29, a decision to the Secretary of Labor, the Comptroller distinctly states that there need be no reduction of automobile mileage proportionate to the number of passengers carried unless the Department in authorizing the mileage distinctly so stipulates.

Taken from The Administrative Bulletin, U. S. Department of Agriculture, Vol. 2, No. 1, p. 21. January, 1932.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

HUMID ATLANTIC COAST AREA (South to North)

GEORGIA

Coastal Plain Experiment Station, Tifton (Corn Breeding, H. S. Garrison) (March 26)

Minimum temperatures of 22 and 29° were recorded on March 10 and 13, respectively. Before that the minimum for the winter had been 31° (Jan. 7) A sudden drop in temperature caused serious injury to small grains, fruits, and shrubbery. Oats were seriously injured, especially Fulghum and other early strains. Apparently about 25 per cent of the varieties and strains in the oat nursery have been killed. However, Fulghum, of which a large acreage is grown in this locality, was nearly ruined by crown-rust before the freeze.

(April 5)

The injury to the oat nursery caused by the cold spell of early March was more severe than appeared at first. The growing parts on all the plants of nearly every strain were killed, so that from a distance it appears that the entire nursery is dead. However, most of the strains are tillering and starting new growth. Those strains that were about fully headed are not tillering much, if any. The plants that were nearly dead from rust injury are recovering but rust is again attacking them, so probably they will not make much progress. The panicles that were about fully exserted were killed and will produce no grain.

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs) (March 17)

In the extreme southern part of Georgia, particularly in the southeastern section, rust of oats was so serious that some of the fields have been either grazed off or plowed up. It is reported that there is some rust up to as far as the central part of the State. In this section there is a small amount. The only rust found on the Station was on a few plants of volunteer oats that apparently came up rather early in the season.

During a recent cold spell the temperature went down to about 17°. Many of the earlier oat varieties that had begun to joint were killed back. Fulghum oats, due to the early growth, seem to be injured more than other varieties. The varieties that had not begun active growth apparently were not injured. It will take some time, however, to estimate accurately the total injury, as it is hard to tell how much recovery will be made.

HUMID MISSISSIPPI VALLEY AREA (South to North)

ARKANSAS

Rice Branch Experiment Station, Stuttgart (Rice Production and Improvement, C. R. Adair) (April 1)

The weather this season has been favorable for growing winter oats.

The weather was very mild and there was heavy rainfall until March 6; from March 6 to 15 the minimum temperature was below freezing each night, with minimum temperatures of 14° and 16° on the 9th and 10th, respectively. This cold weather did not injure any of the varieties and strains except Fulghum, C. I. No. 708, Kanota, C. I. No. 839, and Frazier, C. I. No. 2381. At that time these three varieties were jointing and some plants were heading. They were killed back but are growing up from the crown. The oat crop as a whole gives promise of very good yields.

Considerable plowing for rice has been done. Sowing will begin on the Station about April 10, but the bulk of the rice in this section will not be sown until about the middle of May.

Preparations are under way for the spring visitors' day to be held on April 13. The work with winter oats and winter legumes will be reviewed. There also will be a demonstration in landscaping the farm home.

Dr. E. M. Moore, botanist, University of Arkansas, and Dr. E. C. Tullis, Fayetteville, were visitors from March 28 to 30.

INDIANA

Purdue University Agricultural Experiment Station, LaFayette, (Leaf Rusts, R. M. Caldwell) (April 4)

An inspection of the leaf-rust-resistance wheat-breeding plots on April 2, revealed the overwintering of wheat leaf rust in abundance upon the lower leaves of susceptible varieties. Leaf rusts of wheat and rye have made a phenomenal development through the entire winter until March when severe freezing at temperatures slightly above 0°F. killed back the heavy growth of the winter. During the last days of December leaf rust of rye was collected in the field in sufficient abundance for extensive inoculations in the greenhouse. New infections of both rye and wheat apparently continued to occur throughout the season until the recent frosts.

The winter wheat in this vicinity is in excellent condition, apparently recovering from the March freeze with no appreciable injury to plant parts other than the tender, new leaf growth.

The planting of the spring-wheat-breeding nursery and uniform cereal-rust nursery was completed on March 31 under very favorable weather conditions.

IOWA

Agricultural Experiment Station, Ames (Crown Rust of Oats, H. C. Murphy) (March 30)

The uniform winter-wheat rust nursery sown on September 30 came through the winter in excellent condition. Apparently there was very little, if any, loss from winterkilling in central Iowa.

The uredinial stage of leaf rust of wheat was collected from the winter-wheat plots at the agronomy farm on March 29. Apparently leaf rust has hibernated. Certain rod rows were heavily infected with leaf rust last December. These same rows now show a trace plus of uredinial infection, while rows that were not infected last December continue to be free from rust.

The crown-rust nursery probably will be sown about April 11 to 16, if the weather permits. Seed for approximately 4,000 5-foot rows and 1,000 15-foot rows has been prepared.

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson) (March 10)

Mr. S. C. Salmon, Division of Cereal Crops and Diseases, was a visitor on February 18.

Dr. C. C. Lindegren of Pasadena, Calif., spent March 3 at the laboratory. Dr. Lindegren is connected with Dr. Morgan's laboratory at the California Institute of Technology, where he is conducting research on the genetics of ascomycetes, especially neospora.

GREAT PLAINS AREA (South to North)

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (March 15)

The temperatures for the first five days of the month were above normal but from March 5 to 14 the weather was unusually cold. A brisk norther accompanied by precipitation totaling 0.34 of an inch on the night of March 4 caused the temperature to drop from 74° F. to 23° by the next morning. A minimum temperature of 15° was recorded on March 13.

The warm weather before the cold spell caused all small grains to start spring growth. Barley was beginning to head almost a month early, Fulghum oats were jointing, and a few early wheats were advanced sufficiently to be injured by the freeze. Oats were injured to some extent especially where they had made a rank growth. Spring-type barleys suffered 75 to 100 per cent killing and the winter types were injured. All spring-sown grains were frozen back but oats are recovering. Sweet clover was killed, all winter legumes were injured, and all fruits were killed.

(March 31)

Temperatures during the past two weeks were about normal. The precipitation in March was 1.35 inches below normal. High winds prevailed during the past two weeks and although the subsoil moisture is sufficient, a good rain is needed to bring up corn and other plantings made in dry top soil.

All small grains were injured to some extent by the freezing weather, but wheat has almost fully recovered and oats have recovered to a large extent. The injury to fall-sown oats in the varietal test varied from slight leaf killing to a loss of 30 per cent of the stand. Spring-sown oats in the nursery had just emerged and stands were reduced. In some strains 75 per cent of the plants were killed. All barley in the varietal test except 3 winter strains was entirely killed. Leaf rust of wheat was checked by the freezing weather which followed the dry weather of the past two weeks.

OKLAHOMA

United States Dry Land Field Station, Lawton. (W. M. Osborn) (April 1)

Yield in bushels per acre of grain-sorghum varieties grown in 1931

Variety	C. I. No.	Yield a/ (Bu. per acre)
Reed kafir	628	26.9
Red Amber x feterita	---	26.3
Sourless sorgo (African millet)	---	25.9
Standard Blackhull kafir	71	25.7
Darso	615	22.8
Kaferita	812	22.0
Grohoma	920	21.6
Spur feterita	623	21.1
Milo x hegari (H. C. 282)	---	19.1
Chiltex	874	14.4

a/ Average of two plots.

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(March 31)

There is slight prospect of apricot and peach crops as a result of the cold spell in March. For 6 consecutive days the minimum temperature dropped to 10° or lower. The minimum for the month was 8° on the 10th, the maximum, 83° on the 15th. The precipitation in six measurable showers and snows totaled 0.46 of an inch. The wind averaged 21.1 miles an hour for 24 hours on March 29, and 20 miles an hour for 48 hours on March 28 and 29.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens) (March 31)

The growth of winter wheat was considerably retarded by the cold weather of the first part of March. The most tender varieties were killed back to the ground. All varieties in the varietal plots recovered, but some material in the nursery does not show complete survival. Most varieties, however, are now growing vigorously, and are just beginning to joint. Newspaper reports indicate that some injury from blowing has been done to winter wheat in the Texas Panhandle. No damage from blowing has occurred on the station, although considerable soil in this vicinity has changed location during the month.

KANSAS

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston) (March 15)

Winter wheat was in excellent condition in central Kansas during February, but farther west conditions were poor and considerable abandonment has been reported. As a whole, the condition of the winter wheat crop is much below the average for this time of the year.

Extremely mild weather in February caused much of the wheat to begin growth, and fields that had not been pastured until then were pastured rather heavily during the month. Extremely cold weather prevailed during the first ten days of March, the temperature going as low as -3°, the lowest recorded for this winter. It is not thought that winter wheat will be injured except in some cases where too much growth was induced by the warm weather in February.

Leaf rust has overwintered abundantly in northern Texas, western Oklahoma, and central and northern Kansas. Septoria leaf blotch also is very abundant in early sown fields.

Considerable oats were sown during the latter part of February but had not emerged before the cold weather. Spring plowing has been delayed by snow and low temperatures. Considerable corn has not yet been husked in the northern counties.

Fort Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swan) (April 1)

The rainfall in March amounted to 0.82 of an inch, which is slightly below normal. During the first week of March very low temperatures occurred in Kansas. Wheat was just emerging from dormancy and winterkilling occurred in the more susceptible varieties. In this section the killing is spotted and it is difficult to determine the exact extent of injury. In general it probably will reduce stands about 10 per cent but will not cause serious losses. The growth of wheat has been retarded by the dry weather of last fall and winter and the prospect for a large crop in Kansas is not very promising.

All the sowing of spring oats and barley on the cereal project was completed today. The seeding was about 10 days later than usual this year owing to storms in the middle of the month.

COLORADO

United States Dry-Land Field Station, Akron (Wheat Improvement, J. J. Curtis) (April 1)

Winter wheat has not yet emerged and the fields are badly crusted and cracked. The rotary hoe was run over all the rye and winter wheat on the Station to break the surface soil crust. While prospects for satisfactory stands are not bright examination reveals that some of the seeds are in viable condition, or sprouting, and some seedlings are just emerging or have curled under the surface crust.

Some 44 Smith-Hughes high school boys, together with their instructors, representing 11 high schools, gathered here March 18 for the Northeastern Colorado grain and potato judging contest. Yuma High School was high in grain judging, and Fort Morgan in potato judging.

The spring grain varietal and date-of-seeding experiments were sown the last week in March. The spring-grain nursery will be sown next week.

Snow early in the month netted 0.60 of an inch of precipitation. The last 10 days of the month have been characterized by high northwest winds which have kept the air filled with dust. Soil blowing has been severe on some land adjacent to the Station and winter wheat has suffered, but no soil blowing has occurred on the Station land.

The coldest weather of the winter occurred in the first half of March. Maximum temperature for the month was 69° on the 29th; minimum -17° on the 9th; precipitation 0.60 of an inch.

United States Dry-Land Field Station, Akron (J. J. Curtis and J. F. Brandon) (April 1)

Yield of sorghum varieties grown in 1931

Variety	C. I. No.	Yield [a] (Bu. per acre)
Pink kafir x Freed (Tribune No. 12)	972	27.9
Pink kafir x Freed (Tribune No. 14)	973	21.8
Modoc (Pink kafir x Freed)	905	19.9
Yellow kafir	902	19.1
Kafir (Selection 6)	---	16.7
Extra Early Pink kafir	---	16.4
Elton sorgo	---	15.1
Early White milo	480	13.6
Standard feterita	182-1	13.1
Dwarf Freed	971	12.6
Freed sorghum	350	11.7
Sunrise kafir	472	11.6
Dwarf Yellow milo	332	11.4
Dwarf feterita (Woodward)	---	10.6
Pink kafir x Freed (Tribune No. 36)	974	10.6
Sooner milo	917	10.3
Freed hybrid (71-20-23)	---	10.0
Milo x hegari (H. C. 282)	---	10.0
Kafir (Selection 10)	---	9.9
Coes sorgo	---	9.5
Early Dwarf milo (480x332-7-7)	---	9.4
Club kafir	901	8.6
Dawn selection	904	7.4
Feterita - milo - kafir (H. C. 301)	965	4.9
Hybrid Dwarf feterita	867	4.7
Custer milo	919	4.4
Early Pink kafir	---	4.4
Manchu Brown kaoliang	---	3.8
Otis kafir	---	3.6
Ajax	968	2.3
Dwarf hegari	620	1.9
Grohoma	920	1.7

[a] Average from 4 plots, 2 on fallow and 2 on Sudan grass stubble land.

Yield of proso and foxtail millet varieties grown in 1931

Variety	Yield [a] (Bu. per acre)
Proso	
Turghai	12.3
Yellow Manitoba	12.1
Black Voronezh	8.7
Tambov	8.2
Red Russian	7.9
Hansen White Siberian	7.6
Early Fortune	4.8
White French	4.3
White Ural	3.0

Variety	Yield a/(Bu. per acre)
Foxtail millet	
Dakota Kursk	10.2
Goldmine	8.1
Siberian	6.9
Hungarian	6.5
White Wonder	4.7

a/ Average from 4 plots, 2 on fallow and 2 on Sudan grass stubble land. Yields of proso calculated at 56 lbs. per bushel and foxtail millet at 50 lbs. per bushel.

NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, N. E. Jodon) (March 31)

There were several days of very mild weather toward the last of February and during the first part of March. The first sowing in the date-of-seeding experiment was made on March 3, the earliest date this experiment has ever been sown. Spring wheat was sown on the rotation plots, and part of the rotation winter wheat was resown. A snowstorm occurred on the 4th, and a period of 9 days with minimum temperatures of zero or below followed.

It was not possible to do further seeding until March 22, when the spring-wheat varieties were sown. The spring-wheat nursery was sown on the 25th, oat varieties on the 29th, and barley varieties on the 31st.

Only a small portion of the winter wheat had emerged by March 1. At that time, however, it was all sprouted and alive, although weak. Favorable conditions would have brought it through. The cold weather, wind, and insufficient moisture have prevented emergence and have killed most of the few plants above ground. Genetic material in the smut nursery also was injured.

SOUTH DAKOTA

United States Field Station, Redfield (Wheat Improvement, E. S. McFadde (March 31)

The long winter appeared to be about at an end this morning, and it was expected that work would begin in the field tomorrow, but it is snowing again this afternoon.

Steady winter weather prevailed from January 1 until the last week in February. There were no real blizzards, but almost continuous drifting of snow. Highways were kept open with great difficulty. Toward the last, one could drive from the south line of Spink County to the North Dakota line, a distance of approximately 100 miles, without being able to see out of the road on account of ricks of snow from 8 to 12 feet high on both sides.

Nearly all the snow disappeared during the last week in February, and since there was very little frost in the ground, most of the water is believ to have soaked away immediately under the snow. This has left the fields very soft and made it impossible to do any field work to date.

The weather in March has been cold and blustery but the total precipitation was below normal.

Winter wheat was under a uniform blanket of snow most of the winter except for a short time around Christmas and off and on since the last week

in February. The ground has been bare most of the time for the past two weeks. Winter wheat has started growth, and there appears to have been very little winterkilling to date.

Farmers, as usual, are planning on a bumper crop. It is probable that, if seeding weather permits, the wheat acreage in this area will be larger than last year, since seed of barley, oats, and flax is scarce and of poor quality. Furthermore, wheat came nearer being a profitable crop than any of the other cereal crops last year. Many of the farmers are getting Government feed and seed loans.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard) (April 1)

A comparatively warm period late in February followed by unusually cold weather in March probably caused injury to the winter-wheat nursery. Present field appearances indicate about 85 to 90 per cent of winterkilling. Some green growth is showing irregularily throughout the nursery. A 10th-acre plot of Kharkof wheat sown in stubble shows about 85 per cent of survival.

Field work probably will begin during the week of April 3.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (April 1)

The weather in March was exceptionally cold, especially during the first half of the month. The mean temperature was 20°, - 7° colder than the average for the past 18 years. The maximum temperature in March was 54° on March 24, and the minimum, -18° on March 5 and 6.

Almost continuous cloudy weather prevailed throughout March, with frequent light precipitation totaling 1 inch. The snow has melted and most of the moisture doubtless has soaked in, although the ground is still frozen too hard for field work.

The flax hybrid plants in the greenhouse continue to bloom, although many of them have already set a fair crop of bolls.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (March 31)

The weather in the first half of March was unusually cold and during the latter half it was very changeable with alternate sunshine and snow-squalls. The mean temperature for the month was about 3° below normal. A minimum temperature of -18° was recorded on the 6th and a maximum of 55° on the 29th.

The ground was covered with a few inches of snow until about a week ago.

As a result of unusually heavy rains last September and nearly normal winter precipitation the soil has slightly more than the usual amount of moisture at this date.

Because of cool weather and frequent snowstorms in March evaporation has been comparatively light this spring. This has provided ideal con-

ditions for winter wheat and rye, which show but slight winterkilling and are in much better than average condition.

Field work should begin in another week provided the weather continues warm and dry.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith) (April 1)

The temperatures in March were unseasonably low; the mean for the mont was 13.3°; or 6.3° below normal. However, frequent thaws kept the snow mel ed, and if the weather in April is normal the land should be in condition for working the latter half of the month, as usual.

It was estimated that 1,000 people attended the annual mid-winter fair in Langdon on March 3. The writer was privileged to talk at the men's meeting on the development of new wheat varieties and also to judge the grain exhibits. Potatoes were judged by Dr. P. F. Trowbridge, who also was on the program at the men's meeting. Especially fine samples of durum wheat and flax were shown, the prize-winning sample of durum weighing 64 pounds a bushel. Other grains exhibited were common wheat, oats, barley, emmer, and sweet clover.

County Agent Barrett has conducted seed meetings at Loma and Sarles for the purpose of arousing interest in the use of purer seed grain. He was accompanied by the writer who talked on the development of improved varieties of wheat and conducted purity analyses on samples of seed brought in by the farmers. Through the efforts of the county agent for the past three years, great improvement has been made in the purity of the durum wheat seed available to farmers of this region. A high percentage of the samples brought in for analysis tested 99.5 per cent pure, or better.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (March 31)

March was characterized by unseasonably cold weather during the first two weeks and by precipitation far above normal. The lowest temperature, -29°, was 6° below the lowest temperature recorded in March in any previous year. A snowfall of approximately 8 inches in the first half of March protected the winter wheat from injury. The March precipitation of 1.61 inches has only been exceeded in one other year. This moisture has improved crop prospects materially. The maximum temperature was 62° on March 31.

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Agricultural Experiment Station, Moscow (Wheat Improvement, V. H. Flor April 4)

The heaviest snowfall in 19 years was recorded this year with a total of 105.2 inches. Most of the snow disappeared about March 10. Since that time rain has fallen nearly every day. The total precipitation in March was 5.08 inches. Every one seems to feel that the abundant precipitation is just what the country needs, for several droughty seasons have seriously reduced the reserve soil moisture.

Winter wheat has not come through the season as well as was first believed. While most commercial fields appear to be in good condition, farmers report that there has been quite a little winterkilling. As a result of moderately cold weather early in March, "heaving" caused injury in spots where the snow had disappeared. The opinion is more or less prevalent that because of the heavy snow covering some injury resulted from smothering. This of course would not apply to sections a short distance to the west where much less snow fell.

The winter wheats in plots appear to be in good condition, although it is a little early to say definitely. On the other hand, a great deal of winter injury occurred in the nurseries. In the uniform winter-wheat group Federation, Hope, and Marquis are almost completely killed. Jenkin likewise shows considerable injury but it may revive to a large extent. This nursery was sown early, which accounts in part for the poor showing made by the spring varieties. Where the snow covering remained until the spring thaw the varieties with a winter habit are in excellent condition.

Many rows in the wheat-classification and foreign-wheat nurseries are killed. Presumably these are mostly spring varieties. Several groups of spring wheat sown near the classification nursery but quite late in the season show some injury but may not need reseeding. Several groups of fall-sown spring varieties in another nursery on higher ground are in good condition.

OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens) (March 28)

During the winter there was abundant snowfall in eastern Oregon. In some localities the snow fell on frozen ground. In the last week of February thawing resulted in heavy run off in some sections, and there was considerable damage from washing and gullying in fields fallowed in 1931.

There was no winterkilling of fall grains, and fair stands have been obtained on the Station. The plots in latest dates of sowing in the rate-and-date-of-seeding experiment probably will have to be reseeded.

Moisture conditions this spring have so far been favorable. A total of 1.33 inches of rain has been recorded this month. Soil-moisture samplings this spring show abundant moisture in the first 3 feet but quite a marked deficiency in the 5th and 6th feet. During the first half of March the weather in the Columbia River Basin was somewhat colder than normal, resulting in a late spring.

Preparation of land for spring sowing has been delayed by showers during the past 10 days. Sowing of spring grains is now in progress and if the weather is favorable it will be completed within a week.

Agricultural Experiment Station, Corvallis (Foot Rots of Wheat, Roderick Sprague) (March 31)

The plots inoculated with Cercosporella at Corvallis were partially covered with back water from the recent flood of the Willamette River. They were not injured and at this date foot rot is progressing rapidly.

In the plots on High Prairie in Klickitat County, Wash., foot rot was beginning to show on March 20 and was further advanced at that date than in previous years. There was some smothering in the varietal plots, but on the whole the grain looked well. The test acreage of Wilhelmina (Holla) wheat came through in good shape. A field of Gray Winter oats on foot rot ground was nearly destroyed by winter injury. Rainfall in March has been abundant.

The survival of the standard varieties and some of the newer selectio and hybrids in the plots on High Prairie was as follows:

SURVIVAL

96 to 100 per cent

Wheat
Hybrid 128 (5 series)
Turkey (local)
Nursery No. 948
Hybrid 63

Rye
Rosen
German

---

91 to 95 per cent

Wheat
Tenmarq
Martin x White Odessa (H. P. 134)sel.
Nursery No. 948 sel.
Fortyfold
Portage
China
Kofod
Red Chief
Hybrid 128 (4 series)

---

86 to 90 per cent

Wheat
Turkey (another local)
H. P. 134
Hybrid 128 (2 series)
Oregon No. 100
Pacific Bluestem
Galgalos
Rural New Yorker No. 6
Rochester
Michikof

76 to 85 per cent

Wheat
Wilhelmina (Holland)
Kanred x Marquis sel.
Honor
Silvercoin
Eaton

Barley
Pidor
Utah Winter

---

51 to 75 per cent

Wheat
Nebraska No. 28
Fortyfold x Hard Federation (C. I. No. 8248)
T. N. 1044 (Ohio)
Kinney

---

26 to 50 per cent

Wheat
Fortyfold x Federation sel.

Emmer
Black Winter

Oats
Gray Winter

Below 26 per cent

Wheat
Kubanka
Sonora
Mexican Bluestem
Bobs

The injury is attributed to smothering under the blanket of snow and ice rather than to direct freezing. The records were taken from the September 1st sowing. Those sown on the 23rd showed a thinner stand but less actual smothering effect. The plants killed during the winter in the sow-

ings of September 1st were alive in early winter, death occurring in late winter or early spring.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward) (April 1)

Continuous storms and cold weather in March have delayed plant growth. Winter wheat has been protected with a heavy snow cover which is just leaving the valley bottom.

The precipitation for the month was 3.20 inches. The maximum and minimum temperatures were 63° F. on the 31st, and -2° F. on the 11th and 12th, respectively.

Abundant water should be available for irrigation, as indicated by a survey conducted on March 27, which showed the snow in the mountains to be 43 to 81 per cent greater than the average depth.

The first warm clear day of March was on the 31st. If this warm spell continues sowing will begin in a few days. The season in Cache Valley is proportionately later than in other sections of the State.

ARIZONA

United States Field Station, Sacaton (C. J. King and A. T. Bartel) (April 1)

Yield in bushels per acre of grain-sorghum varieties grown under irrigation, 1931

Variety	C. I. No.	Yield a/
Fargo Straightneck milo	809	68.3
Dwarf hegari	620	61.4
Double Dwarf milo	868	59.4
Grohoma b/	920	55.7
Dwarf Yellow milo	332	50.2
Standard feterita	182	43.1
Wheatland milo b/	918	40.9
Beaver milo b/	871	40.5
Dwarf White durra	977	30.8

a/ Average of two plots b/ Small plots.

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

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Vol. 24 April 20, 1932 No. 5
Personnel (April 11 - 20) and Field Station (April 1 - 15) Issue

LIBRARY

PERSONNEL ITEMS

At a seminar held in the Department conference room in the Bieber Building on April 12, Dr. J. R. Holbert gave an illustrated talk on studies of disease and cold resistance in corn. The following points were covered:

1. Resistance to Diplodia;
2. Effects of prematurity chilling and prematurity freezing temperatures on yield and composition of grain;
3. Relation of bound water to resistance to cold injury.

Mr. J. W. Jones left Washington on April 12 for points in Louisiana, Texas, and Arkansas in the interests of cooperative rice investigations. Mr. Jones will be in the field about six weeks.

Mr. H. H. McKinney left Washington on April 19 for Lexington, N. C., to take notes on cooperative mosaic disease experiments.

Mr. F. D. Richey left Washington on April 19 on a 3-day trip to the Cornell University Agricultural Experiment Station, Ithaca, N. Y., in the interests of cooperative corn experiments.

MANUSCRIPTS AND PUBLICATIONS

18 A manuscript entitled "Phyllosticta rabei on Chick Pea, II," by Roderick Sprague, was approved on April 12 for submittal to Phytopathology.

19 A manuscript entitled "The Sherman Branch Experiment Station," by D. E. Stephens, was approved on April 14 for publication as a circular of the Oregon Agricultural Experiment Station.

20 A manuscript entitled "An Experimental Study of the Rod-Row Method with Spring Wheat," by H. K. Hayes, H. K. Wilson, and E. R. Ausemus, was approved on March 17 for submittal to the Journal of the American Society of Agronomy.

21 A manuscript entitled "Portable Refrigeration Chambers for Studying Cold Resistance of Plants in the Field," by J. R. Holbert, T. L. Burlison, and A. G. Johnson, was submitted on April 15 for publication in the Journal of Agricultural Research.

22 A manuscript entitled "Developing Grain Sorghums for Combine Harvesting," by John B. Sieglinger, was approved on April 18 for submittal to The New Agricultural Review, of Kansas City, Mo.

COORDINATED YIELD NURSERIES

The efficiency of any nursery system is measured by the rapidity by which low-yielding and generally inferior strains and varieties are eliminated. During recent years the oat project of the Division of Cereal Crops and Diseases has been conducting several series or sets of uniform yield test nurseries that have been very satisfactory in determining the better strains and varieties. For the want of a better name they may be called "Coordinated Yield Nurseries." The procedure has been to grow from 10 to 20, or even more, strains of similar varietal type in uniform nursery experiments at numerous stations within a rather limited yet general area in which the results of earlier investigations with similar types have indicated their possible adaptation. In most of these nurseries each variety has been grown in three single 15-foot rows, but on some stations 3-row blocks have been used. The cooperating station usually has prepared the seed for sowing the nursery after the first year, except on the smaller stations.

During the fall and winter the yield data on the different varieties and strains are forwarded to this Division for compilation and study. When all the data for a certain area are summarized according to oat groups and varieties, the summary tables are rotoprinted, and copies are mailed to all the cooperating agronomists who grew the varieties. Suggestions are then offered relative to eliminations and additions for the next year. The success of the system has been due to the fact that each cooperating station receives the data from every other station annually. Many of these nurseries are conducted by informal cooperation, without any financial help from the Division of Cereal Crops and Diseases.

The chief advantage of a system of nursery tests of this kind has been the isolation of the few really superior strains within a relatively short period of two or three years. Usually the high-yielding sorts have shown a wide adaptation. When a variety ranks first or near the top in yield at half the stations the first year in the test it is almost safe to conclude that this particular strain possesses inherent high-yielding power. A few strains have been consistently high at one or a few stations but have failed to perform satisfactorily at most other stations. These specialized strains are limited in their adaptation and are of local value only.

A word regarding the source of the varieties and strains included in these nurseries. A cooperating station may include any new strains (the number is limited in some series) which are of promise on that particular station. Up to the present time the Division of Cereal Crops and Diseases has contributed a majority of the new strains to these nurseries. However, in one set of nurseries started in 1931 among five cooperating west North-Central States all but two strains were contributed by the States.

The wide adaptation and value of Brunker oats and the value of Carleton oats were largely determined by this system.

T. R. Stanton
F. A. Coffman

GREAT PLAINS AREA (South to North)

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (April 15)

The weather of the first half of April was favorable for the growth of small grains. Temperatures were nearly normal. There were no frosts after April 1, although the temperature dropped to 33° F. on the morning of the 12th. The maximum temperature recorded was 88° F. Only 0.05 of an inch of precipitation has been received so far this month. High winds have prevailed most of the time. On April 10 the wind velocity for the 24-hour period averaged 18.6 miles an hour.

Small grains, especially wheat, have made satisfactory growth. The dry weather has been favorable for wheat, as it has held leaf rust in check. The lack of rainfall for the past month has not injured the small grains, although most other crops are in need of rain. Some corn planted nearly a month ago has not emerged, owing to the dry top soil. Cotton planting is now in progress. Winter barley, early oats such as the Fulghum strains, and Nebraska No. 28 wheat are now heading. Spring-sown oats are very poor throughout this district. A good rain would be beneficial to all crops, including the small grains.

The county agent at Amarillo reports that the winter-wheat varietal test has been entirely killed. The nursery there was injured much less and probably will survive. No doubt this was because of the snow covering.

COLORADO

United States Dry-Land Field Station, Akron (Wheat Improvement, J. J. Curtis) (April 15)

Winter wheat has emerged to very poor stands of probably less than 25 per cent. Growth has been very slow and it will not be possible to estimate stands with any degree of accuracy until later.

The sowing of all oats, barley, and spring wheat was completed on or before April 12. Oats, barley, and spring wheat in the varietal tests have emerged to good stands.

A large acreage of barley is being sown in this district. An increased interest in oats is noticeable this spring, probably because of the poor prospects for winter wheat and the favorable showing made by Brunker and Kanota oats grown by farmers in this locality.

On April 14 high winds caused some soil blowing. The maximum temperature for the first half of the month was 75° on April 1; the minimum was 24° on April 10; the precipitation totaled 0.06 of an inch.

NORTH DAKOTA

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (April 16)

With favorable weather during the past 10 days, satisfactory progress has been made in farming operations in this section. Field work

began at the end of the first week in April, and seeding is now well advanced.

The sowing of wheat, oats, and barley in rotation plots at the Substation was completed on April 11. Wheat and oat varieties were sown in replicated plots on the 12th, and barley varieties on the 13th. A spring wheat nursery of 1,080 rod rows was sown on the 14th. Showers, totaling about 0.20 of an inch of precipitation, interrupted field work on the 15th. This was about the only precipitation so far this month. Seeding was resumed today, completing rod rows of wheat, the uniform smut nursery and 500 rows in the hybrid smut nursery.

Moisture conditions are more favorable than they were this time last year, causing uniform germination and starting growth in the winter wheat and rye, which are thriving.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith) (April 15)

Warm weather has prevailed during the first half of April and fields should be in condition to work next week. The ground has thawed to a depth of nearly a foot. One light shower was the only precipitation in the past two weeks.

Seeding plans are nearly completed, and preparation of the seed is progressing satisfactorily.

The uniform winter-hardiness nursery promises only weak survival. The indications are that much injury resulted from the severe March weather.

MONTANA

Montana Agricultural Experiment Station, Bozeman (Austin Goth) (April 15)

The weather of the past winter was characterized by steady day-to-day sameness. The ground was covered most of the winter with a good protective blanket of snow. Winter-wheat varieties, both on the Station and in the valley and benchlands, survived practically 100 per cent.

Much of the winter wheat was sown in dry seed beds last fall and the stands are thin, though vigorous. Melting snow caused some erosion. One farmer was seen using a cultipacker followed by a spike-tooth harrow on his winter wheat. He was doing an effective job of closing and filling in cracks in the soil.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 24 May 10, 1932 No. 6
Personnel (April 21-May 10) and Field Station (April 16-30) Issue

PERSONNEL ITEMS

Mr. Chas. E. Chambliss returned to Washington on May 3 from a trip to points in South Carolina, Georgia, Florida, Alabama, Louisiana, and Texas in the interests of cooperative rice investigations.

Dr. L. F. Randolph, New York State College of Agriculture, Ithaca, N. Y., spent a few days in Washington the latter part of April in the interests of cooperative corn research.

VISITORS

Dr. H. H. Whetzel, professor of plant pathology, Cornell University, Mr. F. L. Drayton, pathologist, Central Experimental Farm, Ottawa, Canada, now a Fellow at Cornell University, and Mr. Keith Parrish, of Barbados, a graduate student at Cornell University, were Division visitors April 25 and 26.

Dr. E. C. Stakman, University Farm, St. Paul, Minn., was a Division visitor from April 25 to 28.

MANUSCRIPTS AND PUBLICATIONS

23 A manuscript entitled "An Economic Study of Broomcorn Production," by R. W. Washburn, of the Bureau of Agricultural Economics, and J. H. Martin, of the Division of Cereal Crops and Diseases, was submitted in April for publication in the Technical Bulletin series.

24 A manuscript entitled "Hybrid Sweet Corn," by Glenn M. Smith, was approved on May 5 for submittal to the Proceedings of the Vegetable Growers' Association of Ohio.

The article entitled "The Growth Curve in Barley," by Merritt N. Pope, appears in the Journal of Agricultural Research 44(4): 323-341, figs. 1-10. February 15, 1932.

The article entitled "Catalase Activity in Relation to the Growth Curve in Barley," by Merritt N. Pope, appears in the Journal of Agricultural Research 44(4): 343-355, figs. 1-7. February 15, 1932.

U. S. Dept. Agr. Tech. Bul. 295 entitled "Susceptibility of Barley to Leaf Rust (Puccinia anomala) and to Powdery Mildew (Erysiphe graminis hordei)," by E. B. Mains and Mary L. Martini, was received from the Government Printing Office on April 30. (Cooperative investigations between the Division of Cereal Crops and Diseases and

the Purdue University (Indiana) Agricultural Experiment Station.)

The article entitled "Studies on the Breaking Strength of Straw of Oat Varieties at Aberdeen, Idaho," by L. L. Davis and T. R. Stanton, appears in the Journal of the American Society of Agronomy 24(4): 290-300, fig. 1. April, 1932. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Idaho Agricultural Experiment Station.)

The note entitled "Modifications in the Columbia Drill for Seeding Oats and Barley," by N. E. Jodon, appears in the Journal of the American Society of Agronomy 24(4): 328-329. April, 1932.

The article entitled "Use of Expressed Sap in Determining the Composition of Corn Tissue," by J. D. Sayre and V. H. Morris, appears in Plant Physiology 7(2): 261-272, figs. 1-5. April, 1932. (Cooperation between the Division of Cereal Crops and Diseases and the department of agronomy, Ohio Agricultural Experiment Station.)

ADMINISTRATIVE NOTES

SECOND NOTICE - DUPLICATE VOUCHERS

Pay-roll and purchase vouchers (Forms 1013d and 1034) must be submitted in duplicate. Carbon copy need not be signed. (See Cereal Courier Vol. 24, No. 3, p. 59. March 10, 1932.)

Titles on pay-roll vouchers. Each payee on a pay roll must have a title descriptive of the service rendered, such as laborer, stenographer, assistant, etc., or the voucher should be accompanied by a brief statement of the character of service performed so that proper title may be added.

H. S. Smith.

SUGGESTIONS TO AUTHORS

Attention is called to the necessity for guarding against making additions, changes, and corrections in galley and page proofs of manuscripts to be published by the Government Printing Office.

Because of unavoidable delays which occur in the printing of papers and bulletins there is a temptation on the part of authors to insert in proofs new material obtained since the submission of the manuscript. This might be done if absolutely necessary by withdrawing a manuscript at any time before it has actually been set in type, but such withdrawal should be asked for only in cases where otherwise

there might be danger of giving out misinformation. If an author finds it necessary to change a manuscript in any essential feature after submission, it usually means that too little work has been done to justify publication, or that the data have not been properly digested and summarized, both of which seriously reflect on the author and the Division.

Paragraph 597. Corrections and Alterations in Proof (Administrative Regulations of the U. S. Department of Agriculture) reads as follows:

> Every effort must be made to reduce to a minimum the charge against the printing fund due to authors' corrections and alterations in galley and page proofs. The necessity for alterations in proof would be practically avoided if all manuscripts or copy were carefully edited, revised, or otherwise perfected before submission for printing. Only such changes as are absolutely necessary should be made in the proof. When a manuscript has advanced to galley or page proof, ordinarily it is too late to undertake to improve the language, form of expression, capitalization, paragraphing, etc. (Amended; effective August 13, 1927.)

With the present shortage of printing funds, Department and Bureau officials are finding it necessary to be extremely strict in the enforcement of these regulations ,and we must ask the most complete cooperation of all individuals who may have manuscripts in preparation.

M. A. McCall.

NOTICES

The Western Branch of the American Society of Agronomy will hold its annual meeting at Laramie, Wyo., in 1932 on July 25, 26, and 27, at the University of Wyoming.

The World's Grain Exhibition and Conference will be held in Regina, Canada, from July 24 to August 5, 1933.

Following the unavoidable postponement of this event, the Secretary of the Exhibition and Congress desires that the new dates as mentioned above may be made known to those interested.

Copies of pamphlet giving general information for exhibitors and rules and regulations governing competitive exhibits may be obtained from The Secretary, Imperial Bank Chambers, Regina, Canada.

WHEAT VARIETAL SURVEY FOR 1929

The third wheat varietal survey has been completed and the results prepared for publication. The first survey was made in 1919, and published as U. S. Dept. Bul. No. 1074, entitled "Classification of American Wheat Varieties." The second survey was made in 1924, and published as Dept. Bul. No. 1498, entitled "Distribution of the Classes and Varieties of Wheat in the United States."

In 1929, 74,000 questionnaires were sent by the Division of Crop and Livestock Estimates, Bureau of Agricultural Economics, to its correspondents. Twenty-five thousand replies were received of which 10,000 were found to contain usable information which has been made the basis of the present or third survey. The acreages are based upon the figures as reported in the Fifteenth United States Census of 1930.

The 1929 acreages of some of the more important varieties that were introduced by the Department of Agriculture or developed at agricultural experiment stations with which this Division is cooperating are as follows:

Class and variety	1929 acreage	Percentage of class
Hard Red Winter:		
Kanred	3,490,184	13.2
Ridit	166,411	.6
Iobred	107,892	.4
Minturki	89,028	.3
Karmont	85,935	.3
Newturk	12,390	.1
Sherman	1,266	-
Oro	774	-
Hard Red Spring:		
Ceres	347,632	2.6
Kota	250,985	1.9
Marquillo	10,150	.1
Hope	3,405	-
Reliance	311	-
Durum:		
Kubanka	724,864	12.5
Mindum	322,151	5.5
Acme	72,938	1.3
Nodak	36,910	.6
White:		
Baart	766,547	17.1
Federation	752,867	16.8
Albit	78,190	1.7
Hard Federation	61,781	1.4
White Federation	38,401	.9
Onas	17,330	.4
Galgalos	11,516	.3
Total acreage	7,449,547	

The total acreage of these 24 varieties is 12 per cent of 61,997,304 acres reported grown in 1929.

J. A. Clark and K. S. Quisenberry

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

HUMID ATLANTIC COAST AREA (South to North)

GEORGIA

Coastal Plain Experiment Station, Tifton (Corn Breeding, H. S. Garrison) [April 30]

The planting of corn-breeding material was completed on April 19. Germination was very good, and insect injury so far is negligible. There has been almost no bud-worm injury to either early or late planted corn this year.

Oats and other small grains generally have recovered from the frost injury of last month, but the yields will be greatly reduced and maturity will be somewhat delayed.

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs) (May 3)

Many of the oats in the winter-hardiness experiment were killed. It is thought that most of the winterkilling was simply the natural dying of some of the plants, as the only cold weather occurred in March. This cold, while it killed the tops of some plants, did not completely destroy them. It is interesting to note the recovery made by some of the injured oats, particularly Fulghum. In places where they were sown early they had begun to head when the cold weather struck them. The stems were killed back but new tillers came out from the crown and are now heading. These will not make as heavy heads as the others but the yield will be much better than expected.

HUMID MISSISSIPPI VALLEY AREA (South to North)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins) (May 2)

Rather dry weather prevailed in March and up to April 25. The total precipitation for April was 2.79 inches. The maximum temperature was 80° F., and the minimum was 40°.

General farm work, with few exceptions, has been retarded by the lack of rain. Most farmers stopped seeding about the middle of the month and decided to wait for rain. Rice that was sown the latter part of March or in early April has germinated well, and in a few instances has been submerged. Rice sown later in April is very irregular in germination.

Seeding on the Station was delayed purposely, until after rain. Heavy rains on the 29th caused further delay.

A small portion of the rice nursery, cotton varieties, and a part of the cotton fertilizer experiments have been seeded.

On April 2 seed and live plants of wild rice were placed in lakes 20 and 30 miles southwest of Crowley.

Mr. J. W. Jones arrived on April 15 to take charge of the preparation of seed and the sowing of the rice nursery and varietal plots.

Mr. Chas. E. Chambliss was at the Station from April 23 to 27, inclusive.

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg) (May 2)

The extremely mild winter permitted luxuriant growth of grass and various plants.

The weather of the latter part of March and first of April was dry and cool and this permitted the preparation of the experimental plots and the planting to proceed without interruption.

The total precipitation for April was 5.14 inches, most of which fell during the last few days. The minimum temperature was 41° on the 1st and 13th, and the maximum was 85° on the 19th.

The inbred-varietal yield test was planted on the upland from March 28 to 31. The crossing blocks, inbred nurseries, and lines for mosaic studies were planted on both the upland and the bottom land on April 1, 2, 13, 14, and 19. The inbred-varietal yield test planned for the bottom land has not yet been planted, because the land has remained too wet to work. This is due to seepage water from the Mississippi River.

Most of the corn emerged with good stands in from 7 to 9 days and has made excellent growth. The earliest planted corn has been thinned and the plants are 15 to 18 inches high.

Because of the mild winter many insects lived through and caused considerable injury to young corn.

Cutworms, particularly black cutworms, and the rough-headed corn stalk-beetle were more numerous this year than for several years and both did considerable damage to young plants. Poisoned bran bait was used effectively in controlling the cutworm, while the beetles were collected by hand and destroyed.

The southern corn rootworm, which is usually the worst pest, caused very little injury to seedlings this year; most of the larvae of the first generation had reached the pupa stage before the corn came up. In spite of a heavy infestation of insects almost perfect stands were obtained by thick planting and by control measures.

ARKANSAS

Agricultural Experiment Station, Fayetteville (Rice Diseases, E. C. Tullis) (May 2)

Artificial inoculation with Helminthosporium oryzae of panicle selections from segregating F_2 populations in 21 rice crosses were completed in the greenhouse in March. The panicle selections were made at the rice branch stations at Stuttgart, Ark., by C. R. Adair; at Crowley, La., by J. W. Jones and the writer; and at Beaumont, Texas, by J. W. Jones, H. M. Beachell, and the writer. The crosses include combinations between 13 varieties. The F_1 seed was supplied by J. W. Jones. In all, 943 progenies were inoculated over a period of five months, and the conditions were kept as nearly uniform as possible.

The hybrids and parental varieties were classified into five groups, including susceptible, resistant, and three intermediate classes. Selections were found in every class in all but three of the crosses. The reaction of the hybrids was related to that of the parents in most cases.

Some of the parental varieties appear to be more susceptible to infection under greenhouse conditions than when grown in the field. Kameji is resistant under field conditions but is moderately susceptible when grown in the greenhouse.

The crosses will be inoculated in the field this season and it is possible that a larger number of resistant plants will be found under field conditions.

MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)(April 29)

The weather in April has been unusually cold and wet. None of the experimental corn crop has yet been planted. Planting will begin in the corn breeding and corn genetic experiment plots as soon as the weather permits, since the unusually heavy chinch-bug infestation makes early planting especially desirable this year. Because of the shortage of station funds the corn-breeding experiments at outlying points will be confined to Maryville, Grain Valley, and Sikeston.

Dr. C. R. Burnham, former National Research Fellow at the California Institute of Technology, arrived on April 21. He will conduct cytologic and genetic investigations, chiefly with corn.

Dr. Barbara McClintock, a National Research Fellow now at the California Institute of Technology, will arrive early in May to continue her cytological studies of radiation-induced chromosomal aberrations. The results of Dr. McClintock's investigations of this material last season have recently been published as Missouri Experiment Station Research Bulletin 163.

OHIO

Agricultural Experiment Station, Wooster (Corn Investigations, G. H. Stringfield) [May 2]

Preparations for planting corn experiments are nearly completed. Some experiments in southern Ohio will be planted within the next ten days if weather continues favorable.

In spite of heavy rains in January and contrary to expectation, the soil in the vicinity of Wooster again is heavily loaded with nitrates, even more so than in 1931. The possibility of serious lodging in all cereals follows.

INDIANA

Purdue University Agricultural Experiment Station, LaFayette (Corn Rots and Metallic Poisoning, J. F. Trost) (April 30)

The first planting of a series of field plots for the study of bacterial-wilt resistance in sweet corn was completed April 28 under favorable weather conditions.

Germination tests on numerous representative samples of seed corn collected from farmers show an average of 10 per cent infection with Diplodia zeae. This corn will be used in field experiments this year. Seed infection with Diplodia appears to be the principal cause of reduced viability. Seed-corn samples received here are well matured and have suffered almost no winter injury even though much of the seed has been picked from cribs.

IOWA

Agricultural Experiment Station, Ames (Crown Rust of Oats, H. C. Murphy) (April 30)

Cold, dry weather has retarded the germination and development of oats. Sowings in the crown-rust nursery were made on April 8, 15, and 21. Germination has been very uneven; many varieties sown April 15 and a few sown April 8 are just now emerging. There has been a great deal of rain in southern and other sections of Iowa, but a good rain is needed in this vicinity for oats to develop properly. Approximately 1,000 15-foot rows and 6,000 5-foot rows have been planted in the crown-rust nursery. The majority of these are hybrid selections.

Winter wheat is in excellent condition and there has been very little loss from winter injury. Leaf rust, which was apparently present throughout the winter, has made no noticeable advance since March 29.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, E. R. Ausemus) (May 2)

Since January 1 the weather has been extremely cold, but the ground has been covered with snow most of the time. As a result, but little winter injury occurred in winter wheat here. A great

deal more occurred in the winter wheat at Waseca, in the southern part of the State. The rainfall in April totaled 2.15 inches.

Sowing of spring cereals was started on April 22 and is almost completed. The varieties sown on April 22 were emerging May 1. The second sowing of wheat in the wheat-rust nursery has not been made. Temperatures are rather low, making field work more difficult, especially hand seeding.

GREAT PLAINS AREA (South to North)

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (April 30)

The maximum temperature for April was 88°, the minimum, 33°, and the mean, 78.7°. The precipitation totaled 1.96 inches. The last frost of the season occurred on April 1.

In April small grains made satisfactory growth, although all were in need of rain before the drought was broken on the 23rd. Wheat is now in full head, while fall oats have been headed for some time. There are prospects of a good wheat crop, but fall oats will be short. Leaf rust of wheat is causing considerable injury to susceptible varieties, but stem rust of wheat has been found so far. Crown rust of oats has not appeared. Loose smut on the Station was almost completely controlled by the hot-water treatment given the seed last fall. Farmers in the community who did not treat seed report from 5 to 30 per cent of loose smut again this year.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger) (May 1)

The weather of the first half of April was dry; during the last half the rainfall insured sufficient moisture for crops. The maximum temperature was 86° on four dates; the minimum, 31° on the 11th. The precipitation totaled 3.36 inches, of which all but 0.37 of an inch fell in the last half of the month.

Milo and kafir seed is in brisk and steady demand.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens) (May 1)

The precipitation during the latter half of April greatly improved winter-wheat prospects. Plots on fallow ground have a vigorous appearance, considerably better than plots on cropped ground. The earliest varieties are about fully headed, and Turkey wheats will start to head in a week or so. Leaf-rust infection has been noticeably absent during the month.

KANSAS

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson) (April 30)

The extent of injury to winter wheat in Kansas has become increasingly evident during the past 30 days. The poor condition of the crop because of deficient moisture last summer and fall was realized months ago. In addition much injury occurred in March from the cold, and in March and the first half of April from soil blowing. Wheat is a total failure in a large part of the southwestern corner of the State. General soaking rains during the last half of April were too late to benefit much of the wheat in the western part of the State. An unusually large acreage of row crops on abandoned wheat land is promised for this year.

COLORADO

United States Dry-Land Field Station, Akron (Wheat Improvement, J. J. Curtis) (April 22)

The oat varietal experiment was sown early in April and emergence is close to 100 per cent. The oats in the nursery are emerging and good stands are expected.

(May 1)

Beginning with a rain on April 22 the weather remained unsettled for nearly a week during which a total of 1.53 inches were recorded. This was the first consequential rain of the year.

Hard driving winds on April 20, 21, and 22 practically destroyed hopes for any winter wheat this year in northeastern Colorado. Much soil blowing, especially on sandy soils, occurred in this district.

Dr. D. W. Robertson, in charge of plant breeding at the Colorado Experiment Station, visited the Station on April 20 and 21. He reports that the winter wheat between Akron and Fort Collins is very poor, with the exception of a narrow strip between Greeley and Loveland which is in fair condition.

Dr. Robertson reports that the winter-wheat nursery at Fort Collins is fully emerged and that the stands are excellent. The indications are that there will be sufficient irrigation water for the summer. There is a marked difference in the survival of some F_2 multiple hybrid winter wheats at Fort Collins; some entire families were killed. The more winter hardy of these crosses, which were made to secure smut resistance and winter hardiness and other desirable characteristics, later will be brought to Akron for further tests.

The spring-grain varietal tests and nursery have emerged with excellent stands. Spring wheat, oats, and barley are in condition to produce good crops if conditions continue favorable. A large acreage of barley and some oats have been sown in this section and in most cases stands appear satisfactory.

The winter-wheat varietal experiment on fallow may have stands of 25 to 40 per cent; on cornland the stand is very poor. The winter-wheat nursery has poor stands but in most cases it probably will be

possible to get enough seed for seeding this fall.

The maximum temperature for the last 15 days in April was 82° on April 21; the minimum was 22° on April 25, 26, and 27; the precipitation totaled 1.87 inches.

NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, N. E. Jodon) (April 30)

Dry weather prevailed throughout the first three weeks of April. Two rains, totaling nearly 1.75 inches, fell in the last week. The temperature dropped to 25° on the 26th, greatly reducing any prospects for fruit, although grain did not appear to be injured.

Considerable soil blowing occurred in April. The bad effect of the constant winds was greatly increased by the lack of moisture in the soil. Winter-wheat plots on fallow were allowed to remain, since a possible 10 per cent stand survived.

The spring-grain plots sown the latter part of March contained enough moisture near the surface to produce good stands. The second sowing in the date-of-seeding experiment was made March 31, and the third April 13. Most of the nursery seeding was completed April 8. All spring seedings emerged and are in good condition.

The annual western Nebraska Smith-Hughes judging contests were held here on April 21 and 22. About 180 boys, representing 17 schools, took part. Ten teams were entered in the crop judging and identification contest and 8 in the grain-grading demonstration contest. Dr. Crane, president of Wyoming University, spoke at the concluding banquet.

Agricultural Experiment Station, Lincoln (Wheat Improvement, C. A. Suneson) (May 3)

Winterkilling is wheat varieties as a result of the storm early in March was the most severe since 1919. Average survivals in replicated improvement nurseries range from 25 to 100 per cent.

In a period experiment Tenmarq had a higher survival than Blackhull in 20 out of 25 comparisons with 2 ties. In the same experiment Kawvalo had a higher survival than Minturki in 8 out of 25 comparisons with 11 ties. In this experiment Nebraska No. 60, excelled Cheyenne 18 times and tied in 5 of the other 7 comparisons. These relations indicate that the varietal response to the prevailing conditions was not fully in accord with the commonly accepted relative hardiness of the varieties.

Ideal weather for overcoming the killing handicap prevailed throughout April, but injury in many cases was of such a nature that the plants have shown little aptitude for profuse tillering. Present indications are for a normal harvest date, and heading probably will begin about May 15.

Uniform winter-wheat varietal plots at Valentine were killed by fall drought, and those at Alliance were abandoned because of winterkilling. The nurseries at Alliance were favored by snow cover, and present a favorable outlook after the heavy rains.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard) (May 2)

Rain in the last half of April, totaling 1.70 inches, should cause prompt germination of seed and leave abundant moisture in the soil to cause rapid growth when warm weather arrives.

Twenty varieties of wheat and 12 varieties of oats sown on April 14 in 50th-acre plots, replicated three times, emerged with good stands on April 23. Eight varieties of barley were sown April 16 in similar replicated plots and emerged on April 24.

Minimum temperatures of 19 and 23° on April 25 and 26, respectively, caused some injury to the tips of wheat, oats, and barley leaves. Oat leaves especially were injured. The three cereals, however, were only 1/2 to 1-1/2 inches above ground at the time of the frost and their stands do not seem to have been injured.

Eighty-six wheat varieties and hybrids sown in triplicate rod rows replicated three times, 201 varieties and hybrids sown in single rod rows replicated three times, and a uniform rust nursery were sown on April 20. Emergence was noted May 1. About 600 single rod rows and 1,600 5-foot rows were sown April 26 and 27. These should emerge about May 3 if present weather conditions continue.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (May 3)

Good rains in April caused seeds to germinate and gave crops a good start. The total precipitation amounted to 1.99 inches, which is about half an inch more than the average for April. Almost continuous wet weather during the last week of the month interfered with field work.

A severe freeze on the night of April 25, when the temperature dropped to 19°, apparently caused no serious damage.

Cutworms commenced activities before the middle of April and, unless checked, are likely to cause serious injury.

Land has been prepared for flax plots and nursery, and the first sowing of the seed-treatment experiment was made May 2.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) [April 30]

Cool, showery weather has prevailed for the past 10 days, and about 1.65 inches of precipitation were recorded. The total pre-

cipitation for April was approximately 1.90 inches, which is 0.70 of an inch above normal.

The wet weather has delayed field operations but seeding was well advanced because of the early spring. The moisture will be of great benefit to all crops, pasture, and hay land. Winter wheat and rye are in excellent condition, and much of the spring grain has emerged with uniform stands.

A hard freeze with a minimum temperature of 17° on the 26th injured the tips of leaves in spring wheat and barley. The oat varieties, just emerged, were in most cases frozen to the ground. Some varieties are injured more than others. The moist weather should aid in their recovery and it is hoped that reseeding will not be necessary.

The sowing of cereal experiments is nearly completed. The following are yet to be sown: Date-of-seeding experiments with oats, barley, and flax; varietal seedings of flax, proso, and corn; and a final seeding in the hybrid-smut nursery.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith) (April 30)

Nursery seeding is progressing satisfactorily. Yield-test nurseries of common and durum wheats and oats have been sown, as have the local bunt-test nursery, the two cooperative seed-treatment projects, and the uniform rust nursery. The wheat varietal plots have not yet been sown because of slow drying of the field. Seeding in this locality is ten days later than last season and is progressing rather slowly because of unfavorable weather. The soil is in good condition for seeding but the subsoil is not oversupplied with moisture.

The mean temperature for April, 38.6°, and the precipitation, 1.29 inches, were approximately normal. The maximum temperature was 72° on the 20th and the minimum was 5° on the 3rd.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (May 1)

Seeding on the cereal project was started on April 14 and progressed rapidly for a week, when rains made field work impossible. Seeding of plots and nursery was completed by April 28, except for the late seedings in the date-of-seeding test and in the flax varietal plots.

The weather in April was unseasonably cold. Freezing temperatures were recorded on 15 days. The rainfall in the last half of the month totaled 1.03 inches.

Winter injury to wheat is confined to the less winter hardy varieties in the nursery and to the early sown winter-wheat plots.

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, Harland Stevens) (April 29)

Weather conditions in April were about a week later than normal. The maximum and minimum temperatures were 60.4° and 31.1°, respectivel The precipitation totaled 1.18 inches.

All nursery seeding has been completed and germination seems to be very satisfactory.

The following table shows some very interesting differences in spring survival of winter wheats grown in the uniform winter-wheat nursery near Rockland, Idaho.

Survival of Winter Wheat Varieties Grown in the Nursery Near Rockland, Idaho.

C. I. No.	Variety	Spring Survival (Per cent)
1442	Kharkof (checks)	95
8220	Oro	95
6175	Turkey	95
10015	Turkey sel.	95
10016	Turkey sel.	95
8885	Cheyenne	95
5146	Kanred (from Kansas)	95
10061	Argentine	90
11445	Kanred x Hussar (Utah 51b182)	90
4430	Sherman	85
8886	Prelude x Kanred	85
11443	Hussar x Turkey (Utah 43e33)	85
--	Kanred (from Utah)	80
10082	Hussar x Turkey (Utah 43e21)	75
7366	Turkey sel.	75
11444	Hussar x Turkey (Utah 43e193)	75
10080	Turkey x Florence	70
8275	Albit	65
6703	Ridit	60
10081	Jenkin x Ridit (Wash. 2807)	50
10068	Hussar x Hohenheimer	40
5408	Triplet	30
10065	White Odessa x Hard Federation	30
10063	Fortyfold sel. No. 43	20
4512	Hybrid No. 128 (checks)	15
10066	Hybrid No. 128 x Fortyfold	10
4156	Fortyfold	10
10064	Fortyfold sel. 54	0
8247	Fortyfold x Federation	0
5177	Jenkin	0
10067	Hussar x Hohenheimer	0
5219	White Winter	0
11446	Martin x (Sevier x Dicklow)(Utah 53a27)	0
11447	Martin x (Sevier x Dicklow)(Utah 53a59)	0
11448	Martin x (Sevier x Dicklow)(Utah 53a75)	0

Agricultural Experiment Station, Moscow (Wheat Improvement, V. H. Florell) (May 2)

During the latter part of April there were alternate bright sunny days and light spring rains. Since April 24 the maximum daily temperatures have ranged from 60° to 65°, and the minimum from 40° to 45°.

Apple and cherry trees are just coming into bloom. Winter wheat fields are greening up in good shape.

The winter-wheat plot experiment is in good condition. The nurseries are making rapid growth, particularly the uniform winter-wheat nursery which was sown early (September). Spring wheat and oats in plots and about half of the spring wheats in the nursery were sown from April 28 to 30.

WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines) (May 4)

The abundant rainfall in March (5.08 inches) preceded by more than normal precipitation in December and January has forced the moisture to greater depths than has been observed for years. Several tractors were mired during the last week of April in low places that would ordinarily have been firm ground this late. A relatively dry April (only 0.85 of an inch of rain was recorded) made it possible to sow the uplands in normal season. The varieties and hybrids of wheat in the smut nursery were sown April 15 and 16. The oats, because of the higher temperatures required for maximum infection with covered smut, were sown April 25.

Some winterkilling occurred among the wheats sown last fall, especially in the winter-spring wheat hybrids. The more hardy strains show perfect stands.

In summarizing the smut resistance records of recent years the variations in both host and pathogene are consistent and specific for varieties of wheat and forms of smut. Winter wheats make better testers of physiologic bunt forms than spring wheats. With the particular wheats tested, the most virulent bunt forms for winter varieties were among the least virulent for spring wheats. Turkey (C. I. No. 7366), Oro, Hohenheimer, and Ridit were the most consistently resistant of the winter wheats on all forms, while Hope and Selection 3000 of an Albidum wheat from Leningrad were the most resistant of the spring wheats. Neither the consistently resistant nor consistently susceptible varieties makes satisfactory host testers in distinguishing physiologic bunt forms.

In Table 1 Hybrid 128 was taken as 100 per cent susceptible, and the winter wheats in the same tests for the same years were compared with it. The number of plots varied between 12 and 24. Jenkin was used for the standard of comparison with the spring wheats which varied from 7 to 27 plots of each variety.

In Table 2 the prevailing type of smut, T 1, was used as the standard, and each of the others was expressed as a percentage of the total damage caused by it on all the winter wheats (first column) and on all the spring wheats (second column).

Table 1. Comparative susceptibility of 10 winter wheats and 15 spring wheats to 10 physiologic forms of bunt. Average of tests in 1928, 1929, and 1930.

Winter Wheats	Comparative Susceptibility	Spring Wheats	Comparative Susceptibility
Hybrid 128	100	Jenkin	100
White Odessa	63	Baart	72
Turkey (C.I.No.6175)	58	Federation	60
Albit	55	Red Fife	40
Martin	50	Palestina	31
Hussar	33	Black Spike	19
Ridit	3	Dreger's Spring	17
Hohenheimer	2	Persicum	16
Oro	1	Axminster	14
Turkey (C.I.No.7366)	0.7	Marquis	14
		Martin x Marquis	14
		Ruby	14
		White Russian	10
		No.3000,U.S.S.R.	6
		Hope	0.4

Table 2. Comparative virulence of 10 physiologic forms of bunt on the 10 winter wheats and 15 spring wheats listed in Table 1. Average of tests in 1928, 1929, and 1930.

Bunt form	Comparative Virulence on Winter Wheats	Comparative Virulence on Spring Wheats
Tilletia levis No.7	437	79
tritici No.2	392	104
levis No.4	387	79
levis No.6	385	83
tritici No.13	343	143
tritici No.14	308	111
tritici No.3	280	113
levis No.5	201	119
tritici No.12	115	75
tritici No.1	100	100

OREGON

Pendleton Field Station, Pendleton (Cereal Agronomy, J. F. Martin) (May 4)

Spring farming operations in this vicinity were a month later than usual. Many farmers tried to rush the season and as a consequence had to do some of their work over again after the frequent showers in March. One farmer used a spring-tooth harrow on part of

his land four times because the rains caused the soil to run together after it was worked. A total of 3.41 inches of rain fell in March. The precipitation for April was about normal.

Sowing small grains was started about April 1. Nearly everyone had finished sowing by April 15. Satisfactory stands have been obtained, but more rain in May and June will be necessary to produce high yields, especially on the shallower soils.

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens) (May 5)

Weather conditions favorable for crop growth prevailed in most of eastern Oregon in April. At Moro the total precipitation for the month was 1.06 inches, most of which was recorded in the latter half.

The highest temperature was 74° on the 11th, and the lowest, 27° on the 20th.

Winter wheat, although not nearly so far advanced as usual for this time of the year, is beginning to make rapid growth. There are some thin stands because of failure of the plants to emerge. Winter wheat plots in the rate-and-date-of-seeding experiment were disked because of too thin stands and replanted to spring wheat. Several varieties in the varietal trial are much too thin for normal yields. Good stands were obtained in all the tillage experiments.

Spring wheat, oats, and barley varieties have emerged with good stands.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward) (May 2)

Cloudy weather with more than normal rainfall continued in April. Clear warm weather prevailed for one week, during which all the small grains were sown both in the nursery and plots. Since April 16 it has been impossible to do any work in the field, as it rained on all but three days. Thousands of acres of land are either covered with water or are still too wet for seeding. All the nursery and plots are up with generally good stands. The grains sown just before the cold rainy spell did not emerge for over two weeks.

It was somewhat surprising that from 10 to 100 per cent of winter-killing occurred on the dry-farm nursery at Newton. Grains sown early were severely injured, while the late sowings show very good stands. The nursery averaged between 40 and 50 per cent of winter-killing, the heaviest ever recorded at this Station. Farmers in the vicinity of the dry-farm station report similar conditions. Smothering probably was the major factor in the killing, as there were over four feet of heavy snow until late in March but not enough freezing weather to cause damage since the snow melted.

Spring has been very backward and crops have scarcely grown. Leaves are just appearing on the first trees. The snow line remains

near the base of the mountains with as much as 130 inches of snow at higher elevations.

The precipitation in April totaled 3.81 inches. The maximum temperature was 78° on the 16th; minimum, 24° on the 5th, 6th, and 8th; mean, 45.6°.

CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, L. L. Davis) (May 3)

Spring conditions have been very unfavorable for sowing rice. The maximum temperature in April was almost 10° below normal. Frequent rains and much cloudy, damp weather have caused considerable delay in seeding on the Station, as well as in commercial fields. Poor stands of rice may result unless the weather warms up very soon.

A large part of the Station work this season will consist of fertilizer tests, rate-of-seeding studies, and varietal testing. These tests will be conducted on approximately 160 1-10th-acre plots, 200 1-60th-acre plots, and 15 1-5th-acre plots. The rice nursery contains 3,500 rows.

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Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
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Vol. 24 May 25, 1932 No. 7
Personnel (May 11-25) and Field Station (May 1-15) Issue

PERSONNEL ITEMS

Mr. A. C. Dillman returned to Washington on May 13 from a 10-day trip to the U. S. San Antonio Field Station, San Antonio, Tex., in the interests of cooperative flax investigations. Rather dry conditions have prevailed in that section during the growing season, but flax varieties will produce fair crops in spite of the drought. An increase seeding of a pale blue selection of Argentine flax, C. I. No. 342, grown in cultivated rows two feet apart, looked particularly promising. Mr. Dillman made about 150 plant selections from the different strains obtained by Professor Bolley from Argentina last year. These were forwarded to Professor Bolley in time for sowing at the North Dakota Agricultural Experiment Station.

Nearly all flax varieties were injured by freezing temperatures early in March, following a period of warm weather when the plants were in full vigor of growth. A minimum temperature of 22° was recorded on the night of March 12. The Bison variety was most severely injured, the stems having been frozen back 6 or 8 inches. Very little injury was done to the increase plot of C. I. No. 342 and to some other strains of Argentine flax

The cotton root rot fungus was observed on flax roots for the first time last winter. Mr. G. T. Ratliffe, superintendent, was able to identify the fungus definitely on a few flax plants that were wilting from the effects of this disease. No pasmo, flax rust, or flax wilt (Fusarium) was observed on any of the varieties.

Drs. J. A. Faris, A. G. Johnson, and H. A. Rodenhiser spent May 17 in Kearneysville, W. Va., and Boyce, Va., inspecting grain fields for locating smut experimental plots.

Dr. J. A. Faris left Washington on May 24 for points in Ohio, Kentucky, Indiana, Illinois, Missouri, Kansas, Oklahoma, Nebraska, and Iowa, in the interests of cooperative smut investigations. He will be in the field about three weeks.

Mr. J. W. Jones returned to Washington on May 23 from a trip of several weeks to points in Louisiana, Texas, and Arkansas. Mr. Jones spent one month at the Rice Experiment Station, Crowley, La., where he assisted in the preparation and sowing of the cooperative rice nursery. He spent two days each at Texas Agricultural Experiment Substation No. 4, Beaumont, Tex., and the Rice Branch Experiment Station, Stuttgart, Ark., in connection with cooperative rice problems.

Miss M. L. Martini left Washington on May 20 for Aberdeen, Idaho, where she will assist in harvesting and taking notes on cooperative barley experiments.

Dr. H. A. Rodenhiser left Washington on May 24 for Dalhart, Tex., where he will spend about three weeks in the interests of cooperative sorghum smut investigations.

Mr. T. R. Stanton left Washington on May 14 for points in Georgia, South Carolina, and Virginia in the interests of cooperative [redacted] experiments.

MANUSCRIPTS AND PUBLICATIONS

25 A manuscript entitled "Effect of Reduced Oxygen Pressure on Rice Germination," by Jenkin W. Jones, was approved on May 20 for submittal to the Journal of the American Society of Agronomy.

ADMINISTRATIVE NOTES

ATTENDANCE AT MEETINGS

Because of the urgent need for rigid economy, it has been found necessary to refuse requests for attendance at meetings with expenses paid. Requests for attendance without expense to the Government except for salary will be considered, and, on the basis of previous cases, probably will be approved.

ANNUAL LEAVE

United States Department of Agriculture
Director of Personnel and Business Administration
Washington

May 18, 1932.

MEMORANDUM FOR CHIEFS OF BUREAUS AND OFFICES

In view of the existing uncertainty in regard to prospective legislation affecting personnel, annual leave should not be granted in excess of 15 days for Washington employees and 7-1/2 days for field employees during the half-year ending June 30, 1932. If unusual circumstances beyond an employee's control appear to justify an extension of annual leave beyond the limits stated, there will be for consideration an exception to the general rule.

W. W. Stockberger
Director.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

HUMID ATLANTIC COAST AREA (South to North)

GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs) (May 6)

The stands of wheat in all varietal and other experiments at Tifton are very poor because of the dry weather last fall which prevented germination. Estimated stands vary from 2 to 50 per cent. The wheat was sown early in October and there was no rain until December. The later-sown plots in the date-of-seeding experiments have fair stands. There is some rust on all wheat but no more than usual. Growth is poor and yields will be low, even where stands are fair.

Oats emerged with good stands in December. Rust was very bad all winter but appears to have decreased since the cold weather about the middle of March. Early oats, such as Fulghum and Kanota, had begun to head at that time but due to cold and rust only from 2 to 10 per cent have survived.

Hasting (Hundred Bushel), Appler, Bancroft, and similar strains are in fair condition and suffered little injury. Yields will be fairly low, however, as the oats are not making normal growth. Rust does not appear to be very prevalent on the new growth of these types. Some varieties and crosses in the oat nursery appear quite promising. Victoria oats are fair and probably will do well if the weather is favorable.

An acre or more of Victory Swedish oats sown on the Station farm is a total failure. A dealer brought in a carload of these oats, but very few were sown because of the dry fall.

The stands of rye are poor, varying from 30 to 40 per cent. Growth is only fair and yields probably will be low.

Barley stands are satisfactory, but growth is poor and yields of most varieties probably will be very low.

HUMID MISSISSIPPI VALLEY AREA (South to North)

IOWA

Agricultural Experiment Station, Ames (Crown Rust of Oats, H. C. Murphy) (May 16)

A very heavy rain on May 4 caused considerable injury to the oat nursery sown at the Ash Avenue plots. Many rows were entirely washed

away and the stand was greatly reduced in the remaining rows. The oats were in about the two-leaf stage when the rain occurred.

Bushes of Rhamnus cathartica near Ames are heavily infected with the aecial stage of Puccinia coronata. No uredinial infection has been observed on oats but it doubtless will appear very soon.

Wheat is now in the early boot stage. Leaf rust is rapidly increasing.

All small grains have developed rapidly during the past two weeks and show promise of good crops. A large portion of Iowa's corn crop was planted the past week.

GREAT PLAINS AREA (South to North)

KANSAS

Fort Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson) (May 14)

The precipitation since May 1 totaled 0.56 of an inch. This is considerably below normal, and wheat is beginning to show some bad effects from the drought. Timely rains will be very helpful.

The wheat outlook for western Kansas is not satisfactory. Four factors are responsible for the poor condition of the wheat, namely, the dry fall of last year; slow emergence; injury caused by a severe drop in temperature the first week in March; and limited subsoil moisture.

The first nursery planting of sorghums was made today. The seed bed is in excellent condition, as efforts have been made since last fall to conserve moisture.

COLORADO

United States Dry-Land Field Station, Akron (Wheat Improvement, J. J. Curtis) (May 16)

Unusually warm weather following the rains of late April and early May have caused spring grains to make rapid growth. Winter wheat has made a slight growth but the stands are very thin.

The precipitation for the first 15 days of May totaled 1.88 inches; the maximum temperature was 82° on the 13th; minimum, 36° on the 15th.

NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, N. E. Jodon) (May 14)

The lack of rain is still a serious problem in this part of the State. The accumulated deficiency in precipitation for the year is 0.72 of an inch. The normal for May is 2.78 inches. The

precipitation for the first two weeks totaled 0.41 of an inch. The last 3 or 4 days have been hot, and small grains are beginning to show effects of the heat.

Most of the experimental corn has been planted. A cooperative test on an irrigated farm at Sutherland was planted on May 6. This test includes 13 varieties and hybrids in 12 replications, with Substation Yellow as check in every third plot. A similar test, including 11 varieties and a check, was planted at the Station on May 12. Fifty varieties and hybrids were included in replicated plots on dry land.

Agricultural Experiment Station, Lincoln (Wheat Improvement, C. A. Suneson) (May 16)

Relative winter-wheat varietal yields this year will be determined to a considerable extent by differential reaction to two rather seldom expressed and less often combined factors, namely, winter injury and Hessian fly. A heavy infestation of fly exists in this section. It occurred early enough in the spring to minimize tillering and other manifestations of recovery from winter injury, especially in late fall seedings.

Nebraska No. 28 and Early Blackhull are now heading. The straw is a little short.

A Crops Field Day will be held at the Station June 21.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard) (May 17)

Wheat, oats, and barley in nursery and plots have been making satisfactory growth. The moisture in the soil has been ample thus far, although the surface soil has been drying noticeably during the past few days.

Weeds in general emerged rather late this spring but are now making rapid growth, necessitating the use of hand cultivators and hoes.

Considerable winterkilling occurred in the uniform winter-hardiness nursery the past winter. The five varieties showing the highest percentage of spring survival are Minhardi x Minturki, C. I. No. 8215, 8 per cent; three Minard x Minhardi crosses, C. I. Nos. 8218, 8888, and 8889, 9, 5, and 4 per cent, respectively; and Minhardi, 5 per cent.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (May 1)

The weather of the first half of May was warmer and drier than usual but was favorable for crop development and field work.

Final preparation of land for flax experiments was made on May 10.

The land was measured and marked May 11 and 12, and the 9-row nursery of 90 varieties in 3-row triplicated plots was sown May 12. The following were sown on May 13: Nineteen varieties of flax and one of safflower in 50th-acre triplicated plots, 612 5-foot rows of flax on flax-sick soil; 7 varieties of flax, the Russian hempseed, and special safflower in 3-row 50th-acre increase plots to be cultivated. Seven varieties of flax, the Russian hempseed, and special safflower in non-cultivated 50th-acre increase plots and the natural crossing experiment were sown May 14. The second sowing of the seed-treatment experiment, spacing experiment, and after-ripening-loss experiment were sown May 16. Plant selections and hybrids on flax-sick soil and seed from the F_1 hybrid plants grown in the greenhouse will be sown in the next day or two if weather permits. This will complete the flax seeding for the season except for the final sowing of the seed-treatment experiment about June 1.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (May 18)

The weather of the first half of May has been changeable but on the whole was favorable to crop growth and field operations. The surplus of rain in April and a few showers the first week of May have made soil moisture conditions satisfactory. A good rain in the near future would be of much benefit, however.

Cereal crops are making rapid growth and are further advanced than usual at this time. No severe frost has occurred this month, although the temperature has been down to freezing. The severe freeze on April 26 injured the oats in plots so that the stand is somewhat thinned out.

Varieties of flax and corn in plots were planted this week and it is planned to plant the corn nursery within the next few days.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith) (May 16)

Seeding, although a little late, has proceeded very satisfactorily. All nursery seedings have been made except those of hybrid material. The latter will be sown this week, purposely late in order to encourage stem-rust infection. Most of the wheat and some oats have emerged with fine stands and are making rapid early growth. In fact, yield-test nursery and varietal plots are nearly as far advanced as they were at this date in 1931 because cold weather early last May retarded emergence. The wheat varietal plots were sown May 2 and were up May 14.

Temperatures of about 90° were recorded on May 13 and 14, and grain made rapid growth. The growth of trees and shrubbery was also given a sudden start, but was halted yesterday by temperatures hovering around 50.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (May 15)

The flax varietal plot test was sown May 9 and the intermediate sowings in the date-of-seeding test with spring grains were made May 5. All spring grains emerged with good stands and during the past few days of warm weather have made exceptional growth.

Cold weather, which extended through the period of spring seeding, has delayed the germination of weeds until the last few days and has prevented them from being killed by early cultivation. Consequently many fields of spring grain that have emerged within the last 10 days are very weedy.

Soil moisture is sufficient for the present, but rain will be needed shortly for maximum growing conditions.

Montana Agricultural Experiment Station, Bozeman (Austin Goth) (May 13)

Seeding has been in progress for the past eight days and is now completed. Weather, soil, and moisture conditions were favorable for the work. Some of the nursery seedings emerged in six days. Stands and uniformity of emergence are highly satisfactory.

Pastures and alfalfa fields could be irrigated now, although they are not greatly in need of water. To the writer's knowledge there has been very little or no irrigation in the Gallatin Valley up to this date.

Winter wheat, alfalfa, and clovers have responded wonderfully to the warm, sunny weather. The winter wheats particularly are making rank growth.

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

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Vol. 24 June 10, 1932 No. 8
Personnel (May 26-June 10) and Field Station (May 16-31) Issue

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PERSONNEL ITEMS

Mr. B. B. Bayles left Washington on May 22 for points in Arizona, California, Oregon, Washington, and Idaho on his annual field trip to observe wheat experiments and confer with Division and cooperating State station personnel regarding the conduct and plans of the coordinated wheat improvement program in the Far Western States.

Mr. O. S. Fisher left Washington on June 4 for Massachusetts and Vermont to inspect demonstrations of and help to develop additional plans for pasture and forage crop extension work.

Mr. H. S. Garrison, stationed at the Coastal Plain Experiment Station, Tifton, Ga., conferred with members of the Division on June 6 relative to cooperative corn breeding experiments while on annual leave during a vacation trip.

Dr. H. B. Humphrey left Washington on June 10 to take notes on cooperative uniform rust nurseries and confer with collaborators and Federal field employees in Kentucky, Virginia, Ohio, Indiana, Michigan, Iowa, Kansas, and Minnesota.

Dr. A. G. Johnson left Washington on May 27 for points in Wisconsin, Minnesota, South Dakota, Iowa, Illinois, and Indiana in the interests of cooperative cereal-disease investigations.

Mr. R. W. Leukel, together with Drs. Jehle and Oldenberg, of the University of Maryland, and County Agent John Magruder, visited several barley fields in Howard County, Maryland, on June 3.

In all fields in which untreated seed had been sown covered smut varied from 10 to 20 per cent, stripe disease varied from a trace to 5 per cent, and loose smut generally was less than one per cent.

Fields in which treated seed had been sown were nearly free from covered smut, but the formaldehyde dust used did not control stripe disease and loose smut.

Dr. J. H. Parker, who was on leave of absence from the Kansas State Agricultural College from October 16, 1931, to June 10, 1932, to serve as visiting professor of plant breeding at Cornell University during a part of Dr. H. H. Love's absence in China, returned to duty at Manhattan on June 10.

Dr. M. N. Pope was in Richmond, Va., on May 31 to confer with seedsmen, inspect fields of barley and arrange for testing barley varieties.

Dr. M. N. Pope and Mr. J. W. Taylor spent June 3 at Manassas, Va., inspecting barley varieties for seed purposes.

Dr. K. S. Quisenberry left Washington on May 28 for points in Texas, New Mexico, Oklahoma, Nebraska, and Kansas on his annual field trip to observe wheat experiments and confer with Division and cooperating State station personnel regarding the conduct and plans of the coordinated hard red winter wheat improvement program.

Mr. S. C. Salmon left Washington on June 1 for points in Texas, Oklahoma, Kansas, Nebraska, Iowa, Missouri, Illinois, Indiana, Ohio, and West Virginia in the interests of cooperative wheat investigations.

Mr. T. R. Stanton returned to Washington on May 25 from a 10-day trip in Georgia, South Carolina, and Virginia in the interests of cooperative oat investigations. Mr. Stanton spent May 16 and 17 in Tifton, Ga., assisting Mr. H. S. Garrison in harvesting the winter-oat nursery. On May 16, Dr. R. M. Caldwell arrived at Tifton to make crown-rust readings on all varieties and selections in nursery rows. About 50 per cent of the varieties and strains in rod rows had been completely destroyed by crown rust. Victoria, Bond, and Avena 1095a showed high resistance and were maturing rather normally in spite of the very dry weather. Some of the Red Rustproof strains such as Appler, Hastings, Ferguson No. 71, and Nortex also showed some resistance. They probably will produce fair yields.

The hybrids of Fulghum, Nortex, Lee, etc., on Victoria, grown in F_2, were highly to moderately resistant to crown rust, the highly susceptible plants in some combinations apparently having been destroyed by crown rust which was prevalent throughout the winter and spring. Some of these hybrids appeared promising for the South.

Kareela, a variety that showed some resistance to crown rust under an artificial epiphytotic at Ames in 1931, was infected under natural conditions at Tifton. About 25 plant selections in 5-foot progeny rows were estimated by Dr. Caldwell to vary from 40 to 60 per cent in infection. The percentage of infection for each of a similar number of progeny rows of Bond was read as zero. The various progeny rows of Avena 1095a also were entirely free from crown rust. This oat was fully ripe, while Victoria and Bond still were a little green. Bond may be too late for southern Georgia. Avena 1095a is typical of the Red Algerian variety and may offer greater possibilities for the South than Bond, provided it is sufficiently productive. No strain of the Red Algerian variety tested in the United States has been the equal in yield of the best Red Rustproof strains.

On May 19 the excellent oat nursery conducted by Mr. R. P. Bledsoe, of the Georgia Experiment Station, Experiment, was inspected. Winter-oat hybrids sent from the Division several years ago have shown high winter resistance. However, they are susceptible to

crown rust and are inferior in yield to the best Red Rustproof strains in years when crown rust is prevalent. Fulghum and Red Rustproof selections made in 1929 by Dr. H. C. Murphy and Mr. Stanton from fields in different sections of the South have been promising at Experiment and may offer possibilities as improved strains of these varietal types. Numerous progeny rows of crosses of Navarro x Fulghum and Fulghum x Markton were of interest.

At Athens winter oats had recovered remarkably well from the injury caused by cold weather early in March. Fair yields will be obtained from some of the varieties.

Numerous strains of Red Rustproof and winter common oats in nursery rows were observed at Clemson College, S. C. As at Athens, winter oats have recovered very well from the cold March, and better yields than expected were in prospect. Stops also were made at Hartsville, S. C., and Richmond, Va. At Hartsville the large winter oat-breeding nursery conducted by Coker's Pedigreed Seed Co., was inspected. Numerous plots and nursery rows of smut-resistant strains from the cross Navarro x Fulghum were examined. In Richmond, Va., the value of certain new oat varieties for Virginia was discussed with representatives of T. W. Wood & Son Company, the Virginia Seed Service, and the Southern Planter. A visit was made to the Seed Testing Laboratory of the State Department of Agriculture from which the Division has received many samples of oats for varietal identification.

In general, oats in the Coastal Plain were in poor condition. They had been injured severely during the winter by crown rust and by the cold spell in early March. As a result many fields were hardly worth harvesting. In Tifton and vicinity much smut infection was noticed in Fulghum oats. In one field the infection was estimated at from 70 to 80 per cent. In the Piedmont, however, oats generally were in much better condition; some fair yields probably will be obtained. Oats had recovered much better than expected from the setback resulting from the severe cold weather of March. It seemed to Mr. Stanton that many more oats are being grown in the Coastal Plain and Piedmont sections than in previous years. As might be expected, more feed crops would be grown when cotton is selling at six cents a pound.

VISITORS

Dr. F. E. Kempton, formerly in charge of barberry eradication in this Division, was a visitor on May 31. Dr. Kempton is now farming near Centerville, Ind.

Dr. W. V. Ludbrook, of the Division of Plant Industry, Canberra City, F. C. T., Australia, spent several days in Washington and was a Division visitor on May 31. For the past 2-1/2 years Dr. Ludbrook has been attending the University of Wisconsin as a graduate student, having been granted an Australian Commonwealth Fellowship which enabled him to carry on his studies in plant pathology in the United States.

MANUSCRIPTS AND PUBLICATIONS

26 A manuscript entitled "Inheritance of Reaction of Wheat to Physiologic Forms of Tilletia levis and T. tritici," by W. K. Smith, was submitted on June 9 for publication in the Journal of Agricultural Research.

The note entitled "Root, Crown, and Shoot Rot of Milo," by Charlotte Elliott, F. A. Wagner, and L. E. Melchers, appears in Phytopathology 22(3): 265-267, fig. 1. March, 1932. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

The article entitled "An Additional Pair of Factors Affecting Anthocyanin Pigment in Maize," by Merle T. Jenkins, appears in the Journal of Agricultural Research 44(6): 495-502, fig. 1. March 15, 1932. (The data on which this paper is based come from the corn-improvement project conducted cooperatively by the Division of Cereal Crops and Diseases and the Farm Crops Section of the Iowa Agricultural Experiment Station.)

Technical Bulletin No. 313 entitled "Studies on Physiologic Specialization in Puccinia triticina," by C. O. Johnston and E. B. Mains, has been received from the Government Printing Office bearing date of May, 1932.

The article entitled "Seed Selection in Sunrise Kafir," by John B. Sieglinger, appears in the Journal of the American Society of Agronomy 24(5): 411-416. May, 1932.

The article entitled "The Nature and Extent of Hetero-Fertilization in Maize," by George F. Sprague, appears in Genetics 17(3): 358-368, figs. 1-2. May, 1932.

The article entitled "Seed Treatments with Chemical Dusts and Formaldehyde for Smut Control in Oats," by V. F. Tapke, appears in Phytopathology 22(5): 429-441. May, 1932.

The paper entitled "Methods of Determining Bound Water in Plant Tissue," by J. D. Sayre, appears in the Journal of Agricultural Research 44(9): 669-688, figs. 1-2. May 1, 1932. (Cooperation between the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

An abstract of the paper entitled "The Chromosomes of Haploid Maize, with Special Reference to the Double Nature of the Univalent Chromosomes in the Early Meiotic Prophase," by L. F. Randolph, appears in Science 75: 566-567. May 27, 1932. The paper was read by Doctor Randolph at the meetings of the National Academy of Sciences held in Washington in May, 1932.

The following six articles written by members of the scientific staff of the Division of Cereal Crops and Diseases appear in the Yearbook of Agriculture 1932, received May 28:

Wheats Bred for Smut Resistance Combined with Yield and Quality, by J. Allen Clark.

Wheat in U. S. Attacked by Three Smuts, Two of Them Widely Distributed, by J. A. Faris.

Wheat Bred to Resist Some Strains of Bunt May Succumb to Others, by H. H. Flor.

Wheat Loss from Stinking Smut Can Be Reduced by Disinfecting the Seed, by R. W. Leukel.

Wheat Loose-Smut Infection Prevented by Arid Climate, by V. F. Tapke.

Wheat Strains Resistant to Flag Smut Afford Best Means of Control, by V. F. Tapke.

OFFICE OF CHIEF OF BUREAU OF PLANT INDUSTRY

Business and Personnel

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

It has just been brought to our attention that in preparing bills of lading for shipments by express, the parties preparing same are not indicating on the bill of lading, or on the package, the value of the shipment.

Bulletin No. 107, Section 7, issued by the Chief Coordinator and dated January 2, 1929, reads as follows:

> In express shipments the liability of the carrier with respect to value should be definitely fixed by showing the declared value on the package or packages; on the bill of lading, original and all copies; and on the express receipt.

In view of the above, it is requested that you issue instructions to those persons in your Division handling express shipments to place a valuation on such shipments. In this connection, there is no additional charge for shipments valued at $50.00 or less. The valuation charge on all shipments valued in excess of $50.00 is at the rate of $0.10 per $100.00.

The attention of employees of your Division making shipments between points in the field should also be drawn to the above.

Yours very truly,

(Signed) Geo. B. Holmes

Geo. B. Holmes
For F. E. Meloy,
Sr. Administrative Assistant.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

HUMID MISSISSIPPI VALLEY AREA (South to North)

LOUISIANA

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg) (June 2)

The precipitation for May totaled 6.84 inches or 2.08 inches above normal. Rain fell every day from May 16 to 26, inclusive. The lowest temperature was 51° on the 4th, and the highest, 87° on the 31st.

Corn made rapid growth during the month. Wet weather delayed cultivation but all plots have been cultivated during the past few days. The earliest planted corn which is 5 feet tall has been laid by.

Mr. H. H. McKinney, Division of Cereal Crops and Diseases, visited the Station on May 26 and 27.

ARKANSAS

Rice Branch Experiment Station, Stuttgart (Rice Production and Improvement, C. R. Adair) (June 2)

The rice nursery was sown from May 11 to 14. The soil was in very good condition as rain totaling 1.5 inches had fallen on May 8 and 9. Nearly all the rice is up to very good stands. The entire nursery will be flooded the last of this week.

The field varietal test was sown May 5 and 6. This series was flooded last week and appears very satisfactory.

The precipitation in May totaled 3.22 inches.

All the oats in the nursery and all but two strains of Sporen Grey Winter in the field test have been harvested. Although oats appeared very satisfactory early in the spring, the yields probably will be poor, due primarily to a heavy infestation of crown rust.

Recent station visitors included Mr. J. W. Jones, May 18 to 20, and Dr. H. C. Murphy on May 29, both of the Division of Cereal Crops and Diseases.

Agricultural Experiment Station, Fayetteville (Rice Diseases, E. C. Tullis) (May 23)

Seedling blight of rice is rather serious on early sown rice in Arkansas. A number of fields sown the last of April were examined from May 12 to May 20 and considerable seedling blight was found in all of them.

Two of the fields had been reseeded and one grower had broadcast seed over the field and then flooded it in an attempt to secure a better stand.

In all cases lesions typical of those produced by Helminthosporium oryzae predominated. In most of the seedlings killed the invasion had occurred at the crown. A great many other seedlings were found with lesions on the first leaf, but it was evident that most of the plants would survive.

In many cases Fusaria had followed up the primary invader.

OHIO

Agricultural Experiment Station, Wooster (Corn Investigations, C. H. Stringfield)[June 1]

All the experimental corn has been planted and most of it is up. Stands as a whole are satisfactory, but germination and growth have been slow because of low temperatures and dry soil.

ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert) (June 4)

The equipment for free and bound-water determinations was reassembled in the portable field laboratory the last week in May, having been moved back from Urbana where it was being used during the winter with greenhouse-grown material.

The field refrigeration chambers were started the last week in May. Their operation will be continued during the first half of June

Dr. J. G. Dickson and Messrs. P. E. Hoppe, A. L. Smith, and S. F. Ivanhoff were at Bloomington May 5 and 6 in connection with the planting of cooperative field experiments.

Dr. R. J. Haskel was a visitor May 13 to 15. He took several pictures showing the methods of applying corn-seed treatments used by individual farmers and by community seed-corn storage plants.

IOWA

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins) (May 28)

Because of rainy weather corn planting was somewhat delayed. Planting of the experimental plots was started May 11 and completed,

except for a few minor experiments, on May 19. Conditions were ideal for planting and the work progressed more rapidly than usual.

This year's experiments comprise a selfing plot of 950 rows, convergent-improvement experiments containing 846 rows, together with the usual crossing plots and genetic studies. Six inbred lines each from Ohio, Illinois, Indiana, Iowa, and the Arlington Experiment Farm were planted for detasseling and crossing with Krug. In 1933 it is planned to grow the inbred-variety crosses of all lines at all stations that submitted lines.

The yield tests this year contain 820 entries divided among six experiments. A date-of-planting experiment, a method-of-planting experiment, and a level-of-fertility experiment also are being conducted.

Agricultural Experiment Station, Ames (Crown Rust of Oats, H. C. Murphy) (June 1)

Uniform oat-rust nurseries at Calhoun, La., and Stuttgart, Ark., were inspected by the writer on May 29 and 30, respectively. Crown-rust infection was very heavy at both stations, showing a maximum of 50 per cent at Calhoun and 85 per cent at Stuttgart. Victoria oats, C. I. No. 2401, was the most resistant at both stations, and Markton, C. I. No. 2053, the most susceptible. Rainbow, C. I. No. 2345, and Schoolman, C. I. No. 2057, showed considerable resistance at both stations.

Stem rust was unusually severe at Calhoun. All susceptible varieties were heavily infected. Glabrota, C. I. No. 2630 was the most susceptible, showing 80 per cent of rust. Hajira, C. I. No. 1001, Iogold, C. I. No. 2329, and Richland, C. I. No. 787, were the most resistant. At Stuttgart most of the susceptible varieties apparently were escaping stem rust. Glabrota, a late variety, was the only one heavily infected.

According to information from Messrs. J. P. Gray and C. Roy Adair at Calhoun and Stuttgart, respectively, and from personal observations, the average yield of oats at each station probably will be about half that of 1931. Much of this reduction doubtless was caused by winterkilling about March 5. However, the greater part of the loss apparently was due to a very heavy epiphytotic of crown rust and stem rust at Calhoun, and of crown rust at Stuttgart.

At Ames all small grains are developing rapidly. Wheat is in full head and early varieties of oats are emerging. Weather conditions during the past month have been favorable for all cereal crops. Leaf rust of wheat has reached a maximum of 40 per cent on the more susceptible varieties. Apparently this rust will cause serious damage to the wheat crop in Iowa if favorable conditions continue. A trace of stem rust on wheat was observed today. No natural infection of crown or stem rust on oats has been found. Barberry and buckthorn bushes near Ames are heavily infected with rust. Septoria on wheat and halo blight on oats are unusually severe and apparently are causing much damage.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul, (Wheat Breeding, E. R. Ausemus) (June 2)

The maximum temperature for May was 95°, on May 14; minimum, 37° on the 1st; and mean, 59°. The precipitation totaled 2.05 inches, which is 1.62 inches less than normal for May. This makes a total deficiency of 1.11 inches since January 1.

All crops are in good condition in this section. Both spring and winter grains have made satisfactory growth. Winter wheat is now starting to head.

Leaf rust was found over a month ago on winter wheat at University Farm and it has become scattered all through the nursery on winter wheats. On May 24 stem urst from hypodermic inoculation made May 16 was first found on winter wheat.

GREAT PLAINS AREA (South to North)

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (May 17)

Weather conditions during the first half of May were favorable for all small grains. The total precipitation for that period was 3.57 inches, breaking the drought which had prevailed for two months. There is ample moisture now for maturing the crops. The maximum temperature for the first half of May was 86°, and the minimum, 52°.

Wheat on the Station has improved rapidly since the rains, and prospects indicate even a better crop than that of last year. Stem rust appeared on May 9 but has not spread very rapidly. A visit was made to several wheat fields in the vicinity of the Station to observe the injury caused by loose smut. A few farmers treated seed plots and in these plots only a trace of smut could be found. Similar seed untreated had from 20 to 35 per cent smut.

Oats also have improved materially since the rains. Fall oats will produce a fair crop and spring oats should produce a good crop where stands were not injured by the freeze.

Barley is ripe and will be cut within a few days. Flax appears especially promising this season. The earliest seedings are now in full bloom.

Mr. Wallace Butler, agent of the Division of Barberry Eradication stationed at San Antonio, visited at the Station on May 14 to observe stem rust.

[June 1]

The weather in May was nearly normal

Beginning the last week in April rains have occurred at intervals of about a week, making conditions very satisfactory for

the heading and filling of small grain. As a result, wheat has produced a good crop and spring oats will be much better than expected. Stem rust of wheat has gained considerable headway and is causing more injury than it has for many years. Crown rust and stem rust of oats have also gained considerable headway in the spring-sown oats.

Barley was cut on May 20 and fall-sown oats on the 28th. Wheat harvest is now in progress in the County. Spring oats will not be ripe for about 10 days.

The following were recent Station visitors: Dr. P. C. Mangelsdorf, Texas Agricultural Experiment Station, and Mr. C. O. Johnston and Dr. K. S. Quisenberry, Division of Cereal Crops and Diseases.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(May 31)

The rainfall in May was deficient. The 18-year average precipitation for May is 3.50 inches, while only 1.39 inches fell in May of this year. The maximum temperature for the month was 90° on the 14th, and the minimum was 44° on three dates.

The first planting of sorghums and broomcorn in the date-varietal experiment was made on May 25, and good stands were in evidence on May 31.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens) (May 31)

Although somewhat in need of moisture, winter-wheat varieties on the Station have withstood dry weather during May fairly well. Nebraska No. 28 is nearly ripe, and all varieties are turning rapidly.

Mr. L. W. Boyle was at the Station on May 26, 27, and 28, taking notes on footrot of wheat. Mr. C. O. Johnston took notes on the uniform rust nurseries on May 29. Leaf rust this year developed very slowly after the freeze in early March, and infection was moderate. No stem rust has been found.

KANSAS

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson) (June 1)

Early reports indicate an unusually large acreage of corn in Kansas this year. In the vicinity of Manhattan corn is up with good stands and appears to be unusually well rooted. Thus far there have been no heavy washing rains such as occurred in May and June of the past two years. This has been a welcome relief in corn planting. Although the rainfall in May was considerably below normal, it appears to have been sufficient for all crops except oats, which suffered from deficient moisture early in the month.

Good rains in the western part of the State have helped wheat prospects somewhat, although for the most part they came too late to be of much benefit. Wheat in this vicinity looks very good.. Enough lodging has occurred to distinguish weak-straw varieties, but not enough thus far to be much of a detriment. More leaf rust than would be expected in a dry spring seems to be present. Chinch bugs which have been scarce for the past two or three years are increasing rapidly this spring.

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston) (May 23)

In May temperatures have been moderate and there has been a shortage of rainfall. Wheat has made very rapid development and most varieties in nursery and field sowings are now fully headed. Moisture is needed rather badly to mature a normal crop, but the need has not become acute as yet. Mildew was very severe in nursery sowings and notes have been recorded on many varieties and hybrids. Some interesting cases of resistance have been noted. Leaf rust is now developing rapidly and if rains should occur within the next few days a rather heavy infection can be expected. Stem rust has not appeared as yet in this locality. Septoria leaf spot is somewhat less prevalent than it was last year, but loose smut is more abundant. Oats are rather short this year, due to the shortage in spring rainfall. No crown rust or stem rust is present as yet but halo blight is rather severe on some varieties.

Reports from central and western Kansas continue to indicate a deterioration in the Kansas wheat crop. Some localities in the western part of the State report that practically no wheat will be matured except on fallow land. The latest estimates indicate that the probable yield will be only about one-third of the record yield of last year.

Fort Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson) (June 1)

Since May 23 rainfall has been abundant, bringing the precipitation for the month up to normal. Wheat on the Station has greatly improved. Normal or better than normal yields are expected.

Throughout this district wheat is in poor condition.

Sorghum planting is now in progress. The seed bed is in excellent condition and germination should be satisfactory. Limited observations of one experiment on the cereal project has shown that with an ideal seed bed and seed that will germinate above 90 per cent in the laboratory it is rarely possible to obtain field germination above 50 to 60 per cent. The average is nearer 30 per cent.

A small head thresher was designed at this Station for threshing individual heads of sorghum. The machine has greatly reduced the time required to thresh the seed heads. It is so designed that there is no possibility of a mixture. It also seems to work satisfactorily for individual heads of wheat.

COLORADO

United States Dry-Land Field Station, Akron (Wheat Improvement. J. J. Curtis) [June 1]

The maximum temperature for the last 16 days in May was 87°; minimum 40°. The precipitation totaled 1.03 inches, making a total of 2.91 inches for the month.

Spring grains are continuing to make fair growth. The earlier varieties of barley and oats are just beginning to head. They appear to be a trifle short. Winter wheat is thin and late.

The corn varietal test was planted on May 23. The first sowing of proso in the date-of-seeding experiment was made on May 16. Sowings will be made every 15 days until August 1.

Farmers in this section have about completed the planting of corn. The stands appear satisfactory. A large acreage of corn has been planted in this section.

NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, M. E. Jodon) (May 31)

The condition of the crops was slightly better the last of the month than it was earlier. There was a shower on the 24th, totaling 0.42 of an inch. This was followed by cool, cloudy weather which enabled the grain to recover somewhat. On the evening of the 30th, 0.92 of an inch of rain fell. This storm is reported to have reached the proportions of a cloudburst east of North Platte.

The total precipitation for May was about 1-2/3 inches. This is 1 inch less than normal. The last rain should enable the rest of the experimental corn to emerge. The surface soil was so dry that some of the corn did not receive enough moisture to germinate. Barley varieties were beginning to head about a week earlier than usual. Oats were fired much more severely than barley. The yields of small grains probably will be low, regardless of the amount of rain received before the end of the growing season. Three varieties of proso were sown on the 28th. Sorghum varieties will be planted within a few days.

SOUTH DAKOTA

United States Field Station, Redfield (Wheat Improvement, E. S. McFadden) (June 2)

A rain totaling 0.56 of an inch fell last night. Although most of the rains this season have been light, they have been timely and there were no late spring frosts to retard plant growth. Consequently, crops of all kinds have been making rapid growth. The small grains are about 10 days further advanced than at this time last year. The earlier varieties of barley and winter wheat are starting to head. Crop prospects in general are more favorable than they have been at this time any year since the cereal experiments were started in 1929.

At present grasshoppers constitute the greatest apparent menace to crops. An extremely warm spell the first part of May started the hoppers hatching by the million, and since then there has been very little unfavorable weather to kill them off. It is planned to start poisoning them soon unless unfavorable weather comes to relieve the situation.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard) (June 1)

Rains on May 30 and 31, totaling 1.35 inches, will be of great benefit to all crops. Wheat, oats, and barley varieties and hybrids are making rapid growth. Plants are stooling profusely. Alfalfa on low land is making very rank growth.

The rains undoubtedly have killed many grasshoppers and have perhaps lessened the danger of a grasshopper plague.

The total rainfall for May was 3.48 inches, 3.19 inches of which were recorded in the last half. The normal rainfall for May was 2.42 inches.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)(June 1)

The hot, dry weather which prevailed throughout most of May was broken on the 25th by rain and snow totaling about 1-3/4 inches. More than 3 inches of precipitation were recorded in the last week of May.

The prospects for good crop yields appear exceptionally promising. The flax varietal plots sown May 13 emerged with excellent stands about May 20. In parts of series 2 and 3, that have a southwestern exposure with no protection, the flax plants were destroyed by a severe windstorm May 22. There was no appreciable wind damage in series 1. The damaged areas were reseeded May 24 and the reseeded flax is emerging satisfactorily.

During the middle of May the surface soil was too dry for germination of seed sown with the planter in nursery rows. The seed germinated after the rain on May 25 and the plants are emerging today.

Light frost on May 25 and 27 killed tender garden plants but caused no injury to flax. The maximum temperature for the last half of the month was 93° on the 18th; minimum, 32° on the 25th and 27th.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (June 1)

All cereal crops except corn and proso are in flourishing condition as a result of recent rains and cool weather. Corn is just emerging and proso has not yet emerged. Warm weather should benefit these crops, so that the prospect is fairly good for all cereal crops if favorable conditions continue during the coming weeks. The last rain, totaling 0.68 of an inch, fell on May 31. This added to the amount of previous showers, makes a total of 2.12 inches for May,

which is only slightly below normal.

Winter rye is heading and winter wheat soon will begin to head. Other small grains are growing rapidly. The stand of oats in plots is thin, owing to freezing at emergence on April 26.

There was a light frost on May 28, while a more severe freeze occurred on May 27, when the temperature dropped to 27°. The cereal experiments were not injured.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith) (June 1)

During the past two weeks nursery and wheat varietal plots have tillered satisfactorily. Moisture was sufficient for germination and early growth, and stands are all that could be desired. The nursery is being cultivated for the first time.

Temperatures generally have been favorable in May. The mean temperature for the month was 52.5°, which is 1.6° above normal. The minimum was 22° on the 16th and the maximum, 89° on the 14th. Very little injury was done to small grains by frosts in May.

The precipitation in May totaled 1.12 inches, which is only half the normal amount. Three weeks of dry weather are beginning to tell on some fields in the community where the reserve moisture is scanty.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (June 1)

There were two good rains in the last 15 days of May. From May 18 to 21 there was recorded 0.54 of an inch of precipitation. However, owing to the lack of reserve moisture in fields with a heavy growth of vegetation, crops such as alfalfa, winter wheat, and grass pastures suffered from lack of moisture until rain fell on May 30.

Pale western cutworms have injured many fields of winter and spring wheat in the past few days. This injury has been confined to fields with much trash on the surface during late summer and winter which have afforded a favorable breeding ground for the cutworms. Seedings on clean fallow land apparently are not infested.

Unseasonably low temperatures from May 24 to 27 caused some minor injury to alfalfa. The minimum temperatures varied from 32 to 27°.

The maximum temperature for May was 82° on the 12th; minimum, 27° on the 26th; mean, 53°. The precipitation totaled 1.50 inches.

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, Harland Stevens) (May 28)

A trip was made recently to the Felt (High Altitude) Substation. The wheat Jenkin x Ridit (C. I. No. 10081) and Jenkin (C. I. No. 5177) in the nursery were badly winterkilled. The remainder of the nursery and the plots were in excellent condition. Spring wheat was just coming up.

There was some winterkilling on the farms in the vicinity of the Substation, but in general wheat looked well.

The weather at Aberdeen has been disagreeable for the past week, but crops are making very good growth.

Agricultural Experiment Station, Moscow (Wheat Improvement, V. H. Florell) (June 1)

Sowing of the spring grain plot and nursery experiments has been completed. Prompt emergence with good stands was obtained in all sowings.

The weather continues unseasonably cool. Freezing temperatures were recorded on three dates in May. A temperature of 30° was recorded at the University weather station on the 25th, and it was as low as 28° on near-by lowlands. Signs of slight frost injury were observed in the winter-wheat varieties but, with possibly a few exceptions, the varieties have fully recovered.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward)(June 1)

Crops grew unusually well during the first half of May but have made little progress since then because of cool, cloudy weather with drying winds. This cool spell appears to have been broken on the 31st, when a rain of 0.26 of an inch was recorded.

The corn varietal nursery emerged on May 19, and the grain-sorghum nursery, with the exception of yellow kafir, on May 31.

The rod-row nurseries were irrigated on May 28 and 29, when the grain was about 6 to 8 inches high.

The precipitation for May totaled 1.08 inches, the evaporation was 4.74 inches, and the mean temperature was 56.7°.

A minimum temperature of 31° was recorded on May 21, but no injury occurred in this vicinity as a light shower fell the evening before. Much injury was reported in adjacent counties and in other parts of Cache Valley.

CALIFORNIA

University Farm, Davis (Cereal Agronomy, G. A. Wiebe) (May 23)

All cereal crops are in good condition and yields above the average are expected. The barley harvest at Davis will start in about 10 days. So far, the weather has been cool and favorable to the grain crop.

The annual Field Day was held on May 20. During the forenoon the work with cereals was fully explained to the farmers of the State. In the afternoon the work with alfalfa and other forage crops was shown.

FURTHER INSTRUCTIONS FOR PREPARATION OF FIELD REPORTS

Since the issue of "Instructions for Preparation of Field Reports (Revised October, 1931)," questions have been raised, indicating the desirability of comment on one or two items:

It is desirable to use "Planting" instead of "Seeding" or "Sowing" in connection with corn and grain sorghum experiments.

Date of silking in corn probably is more nearly comparable to date of heading in small grain in the information supplied. Date of tasseling supplies similar information but adds little in many experiments to that obtained from date of silking. When taken, tasseling should not be recorded until tassels are shedding pollen. Convenient and satisfactory notes are "Date 1/4 silked" and "Date 1/4 shedding pollen."

As the length of the blossoming period of flax varies with weather conditions, it is desirable to note the dates of first bloom (when about one-tenth of the plants have flowers), full bloom (when all plants are in flower), and last bloom (when only a few plants are still flowering). These notes may be recorded in separate columns as:

Date of bloom		
first	full	last

Nursery rows rarely are 16.5 ft. long, and the continued use of the term "rod row" seems undesirable. Furthermore, the data frequently are based upon the yield of the central one or more rows of 3-row or 5-row plots. Accordingly it seems desirable to use the term "Nursery plots" instead of "Rod rows," specifying the number of rows in a nursery plot, the number and length of the rows harvested, and the distance between rows. Where single-row plots are used, these may be designated "Nursery rows" if desired, although the uniform term of "plot" is recommended. (See Page 5, Paragraph 4 of "Instructions for Preparation of Field Reports.")

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 24 June 25, 1932 No. 9
Personnel (June 11-25) and Field Station (June 1-15) Issue

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PERSONNEL ITEMS

Mr. J. Allen Clark left Washington June 15 to visit field stations in Minnesota, North Dakota, Montana, Oregon, Washington, and Idaho where wheat experiments cooperative with these States are being conducted. He will study cooperative wheat classification nurseries and wheat-breeding nurseries for rust and bunt, and confer with officials of State agricultural experiment stations regarding cooperative experiments.

Mr. A. C. Dillman left Washington June 20 for southeastern Kansas to look over farmers' flax fields and flax experiments at Parsons and Columbus. He will also study cooperative flax classification nurseries at University Farm, St. Paul, Minn., at the Northern Great Plains Field Station, Mandan, N. Dak., and at the Montana Agricultural Experiment Station, Bozeman, as well as cooperative flax experiments at the North Dakota Agricultural Experiment Station and at the Dickinson Substation.

Dr. H. B. Humphrey returned to Washington on June 25 from travel in Kentucky, Indiana, Iowa, Ohio, Michigan, and Kansas where he inspected cooperative cereal rust nurseries and conferred with officials of State agricultural experiment stations and members of the Division field staff.

Dr. A. G. Johnson returned to Washington on June 12 from a trip in North Dakota, Wisconsin, Illinois, and Indiana in the interests of cereal-disease investigations.

Mr. C. H. Kyle left Washington June 15 for Tifton, Ga., to hand pollinate corn and obtain field data in the cooperative experiments at the Georgia Coastal Plain Experiment Station. He will also go to Baton Rouge, La., to take notes on the cooperative corn experiment plots at the Louisiana Agricultural Experiment Station.

Mr. R. W. Leukel spent three days (June 20-23) with Mr. F. W. Oldenburg, extension agronomist of the University of Maryland, in a smut survey of the wheat fields of eastern Maryland. More than 150 fields, comprising about 4,000 acres, in 15 counties were inspected.

About 50 per cent of these fields were free from stinking smut and about 30 per cent contained less than 1 per cent. In 15 per cent of the fields the smut varied from 1 to 10 per cent and in about 5 per cent of the fields the smut was more than 10 per cent. Several fields contained more than 20 per cent. Freedom from smut was largely due

either to seed treatment with copper carbonate or to the use of clean certified seed. A considerable number of the fields visited were examined for certification. Estimates of yields varied from 10 to 50 bushels per acre, the average being about 20 bushels. Leap Prolific and Red Wonder are the two varieties chiefly grown.

Barley is replacing wheat to a considerable extent in some sections of Maryland on account of its feed value, its greater yield, and the low price of wheat. The chief variety grown is Tennessee Winter. Where seed treatment was not practiced a high percentage of covered smut was invariably found. Fields containing 10 per cent of smut were common, and those containing as much as 25 per cent were not infrequent. Where Ceresan or Smuttox had been used covered smut was eliminated, but treatment with the latter did not control stripe disease. Estimates of yields varied from 25 to 50 bushels an acre.

Mr. S. C. Salmon returned to Washington June 25 from a trip in Texas, Oklahoma, Kansas, Nebraska, Iowa, Missouri, Illinois, Indiana, and Ohio where he observed cooperative wheat experiments and conferred with officials of State agricultural experiment stations regarding cooperative investigations.

Mr. T. R. Stanton left Washington June 21 to travel in Missouri, Kansas, Colorado, and Nebraska in the interests of oat investigations. He will study cooperative experiments, confer with officials of State agricultural experiment stations regarding the value of certain new varieties, and study the harvesting and handling of the oat crop on farms.

Dr. V. F. Tapke will leave Washington about June 25 for Ithaca, N. Y., to take notes on cooperative barley loose smut experiments at the New York (Cornell) Agricultural Experiment Station.

Mr. J. W. Taylor and Dr. M. N. Pope will leave Washington about June 25 for a 2-day trip to Fishersville, Va., where they will harvest cereals in experimental nurseries for transportation to the Arlington Experiment Farm for threshing and yield comparison. They also will confer with officials of the Virginia Agricultural Experiment Station at Blacksburg, Va.

Mr. Harry W. Warner, recently appointed agent in the cooperative rice investigations at Crowley, La., died suddenly on June 12 while en route to Washington to report for duty before proceeding to his field headquarters. Mr. Warner, a graduate of the South Dakota Agricultural College, with graduate work from Iowa State College, was formerly agronomist with the National Fertilizer Association and more recently in charge of publicity for the Barrett Company with headquarters in New York. Mr. Warner was a young man of ability and boundless energy and with a large circle of friends in agricultural circles.

MANUSCRIPTS AND PUBLICATIONS

27 A manuscript entitled "Varieties of Club Wheat," by J. Allen Clark and B. B. Bayles, was submitted June 14 for publication in the Farmers' Bulletin series.

28 A manuscript entitled "Varieties of Durum Wheat," by J. Allen Clark, was submitted June 14 for publication in the Farmers' Bulletin series.

29 A manuscript entitled "Varieties of Common White Wheat," by J. Allen Clark and B. B. Bayles, was submitted June 14 for publication in the Farmers' Bulletin series.

30 A manuscript entitled "A Rapid Colorimetric Determination of Potassium in Plant Tissues," by V. H. Morris and R. W. Gerdel, was approved on May 5 for submittal to Plant Physiology.

31 A brief manuscript entitled "Transferring Smut Immunity to Hard Red Spring Wheat," by Ralph W. Smith, was approved June 13 for submittal to The Journal of the American Society of Agronomy as a note.

32 A manuscript entitled "Navarro Oats," by T. R. Stanton, was approved on June 20 for submittal to The Journal of the American Society of Agronomy.

33 A brief manuscript entitled "The Influence of Moisture on the Development of the Cercosporella Foot Rot of Winter Cereals," by Roderick Sprague, was approved on June 21 for submittal to Phytopathology as an abstract.

U. S. Dept. Agr. Technical Bulletin No. 292 entitled "The Inheritance of Colored Scutellums in Maize," by George F. Sprague, was received from the Government Printing Office on June 17, bearing date of April, 1932.

U. S. Dept. Agr. Technical Bulletin No. 300 entitled "Susceptibility and Resistance of Berberis and Related Genera to Puccinia graminis," by Moses N. Levine and Ralph U. Cotter, was received from the Government Printing Office June 11, bearing date of May, 1932. (Cooperative investigations between the Bureau of Plant Industry, U. S. Department of Agriculture, and the State Agricultural Experiment Station of the University of Minnesota.)

The article entitled "Developing Grain Sorghums for Combine Harvesting," by John B. Sieglinger, appears in the New Agricultural Review [Kansas City, Mo.] 1(9): 6-8. May, 1932.

The article entitled "A Case of Two Simultaneous Mutations for Virescent Seedlings in Maize," by George F. Sprague and Merritt N. Pope, appears in The American Naturalist 66 (704): 284-285. May-June, 1932.

The article entitled "Recurving in Sorghums," by John H. Martin, appears in The Journal of the American Society of Agronomy 24(6): 500-503. June, 1932.

The article entitled "Differential Resistance of Inbred and Crossbred Strains of Corn to Drought and Heat Injury," by Merle T. Jenkins," appears in The Journal of the American Society of Agronomy 24(6): 504-506. June, 1932.

NOTE

Following a conference of Bureau editors of the Department of Agriculture tentative descriptions of Technical Bulletins and Circulars as shown below were prepared.

Technical Bulletins: Technical Bulletins should contain reports and results of research and experimentation, including variety and fertilizer tests, crop and milk yields, and breeding results; economic and other comprehensive surveys; and technical discussions or compilations (exclusive of purely statistical data and bibliographies). Ordinarily these will be intended primarily for specialists, research workers, teachers, advanced students, and technicians engaged in the scientific phases of agriculture and related work or interested in the acquisition or dissemination of fundamental, technical information underlying the development of agriculture and related subjects.

Circulars: Circulars should carry in brief form the material of semitechnical or of popular nature intended primarily for special groups or for limited or temporary distribution. Material too technical for Leaflets, but not suitable for Technical Bulletins, and that too restricted in scope, too limited in application, too narrow in range of interest, or too ephemeral in value for Farmers' Bulletins, should be published in this series. In general, papers describing methods, apparatus, equipment, technic, procedure, observations, diseases, insects, parasites, new varieties, crops and crop culture and marketing for specialized operators or growers, and any special conditions or phases of agriculture requiring specific discussion should be issued as Circulars.

Final decision will be made in December after all suggestions and criticisms from Bureau officials and members of scientific staffs who prepare manuscripts have been received.

ADMINISTRATIVE NOTES

(A-39462)

11 Comp. Gen. 336

Traveling Expenses - Leaves of Absence

Where an employee absent from headquarters on official business is granted a leave of absence which is terminated by direction to report to Washington, D. C., and he is then directed to return to headquarters, the employee is not excused from bearing so much of the cost of returning to headquarters as would have been necessary by the shortest usually traveled route by rail from the place where he was on

leave of absence.

COMPTROLLER GENERAL McCARL TO THE ATTORNEY GENERAL, MARCH 8, 1932:

"* *

When a person absents himself from his headquarters upon a leave of absence he assumes the duty of returning himself to his headquarters at his own expense, and the curtailing of his leave for official business does not transfer this expense to the Government. 3 Comp. Dec. 170; 13 id. 294; 19 id. 232; 2 Comp. Gen. 424. However, if when recalling the traveler to his headquarters he is instructed to perform temporary duty en route, the employee is entitled to have the Government bear only the extra expense, if any, rendered necessary by the performance of such temporary duty. 10 Comp. Gen. 184, 222, and 415."

In connection with requests for bids, we have been instructed to include in all specifications the following paragraph:

"PRICES BID HEREIN INCLUDE ANY FEDERAL TAX APPLICABLE TO THE MATERIAL ON THIS BID."

In addition to the above paragraph regarding Federal tax all specifications for gasoline must contain the following paragraph relative to State tax.

"The bidder required by law to pay a State tax on gasoline must not quote this tax as part of the sale price, but must quote a net price and STATE AFFIRMATIVELY THAT TAX IS NOT INCLUDED IN THE PRICE QUOTED: OTHERWISE, BID WILL NOT BE CONSIDERED."

H. S. Smith

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

B. P. I. Memo. 649 June 9, 1932

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

I quote below a memorandum which has just been received from Mr. A. Mc. Ashley, Chief of the Division of Purchase, Sales, and Traffic. This is self-explanatory.

> "Bureau instructions to the Central Supply Section of this Division to make shipments of supplies direct to field stations should not be drawn to cover nitric, hydrochloric, or sulphuric acid, since the regulations of the Interstate Commerce Commission require packing involving an expense out of all proportion to the value of the commodity. It is suggested that bureaus authorize local purchases of these acids for use of field stations."

In accordance with this suggestion, will you kindly arrange with your field men for the purchase of the acids in question in the field.

Very sincerely,

(Signed) Wm. A. Taylor

Chief of Bureau.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins) (June 9)

The weather in May was generally favorable for rice sowing and for germination of seed. The first two weeks were dry but the soil was sufficiently moist to permit seed-bed preparation. Heavy rains fell on the 16th and 26th. The total precipitation for the month was 6.33 inches. Temperatures were about normal.

Rice sowing on the Station was completed before the middle of May. All plots are up to a good stand.

Cooperative cotton, corn, and soybean plots were planted early in May. In most cases the stands are satisfactory. The rainfall of 3.36 inches on the 26th caused delay in thinning and cultivation. It also caused some damage, especially to corn.

Commercial rice fields were about all seeded by the end of May. Most stands are satisfactory. As a whole, the fields are rather free of weeds, and the rice is unusually vigorous.

Mr. J. W. Jones, who spent a month at the Station assisting in the preparation and sowing of the cooperative rice nursery, left on May 15.

The following were recent Station visitors: Director C. T. Dowell on May 4 and 11; Mr. John Gray on May 4; Mr. Climaco Mejia, Bogotá, and Mr. Rafael Roncallo, Barranquilla, Colombia, South America, on May 15.

ARKANSAS

Agricultural Experiment Station, Fayetteville (Rice Diseases, E. C. Tullis) (June 17)

Helminthosporium leaf spot of rice is beginning to appear in the Louisiana and Texas districts, the amount of spotting being about the same as it was at this time last year.

Increased rates of seeding seem to favor more rapid development of the disease.

IOWA

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins) (A. A. Bryan) (May 15)

The corn experiments were planted somewhat later than usual this year, the earliest date being May 10. The weather since planting has been exceptionally favorable and stands generally are very good. Reports from part of the Iowa Corn Yield Test fields indicate unusually good prospects.

There are 483 entries in the 1932 Iowa Corn Yield Test. Nearly one-half of these (224) are of strains that are available commercially. The remainder are experimental kinds, largely hybrids between inbred lines.

About 3.5 acres in four blocks were planted with inbred lines for the production of single cross seed, which is to be distributed next spring to farmers who wish to produce double cross seed for commercial planting.

Agricultural Experiment Station, Ames (Crown Rust of Oats, H. C. Murphy) (June 20)

There has been far too much rain during the past few weeks. Oats and other small grains are growing very rank and are lodging considerably. Early varieties such as Iogold are now fully headed. Crown and stem rust are developing rapidly, and some splendid data on the resistance of the different oat selections ought to be obtained if the present weather conditions continue.

NEW MEXICO

United States Dry Land Field Station, Tucumcari (D. R. Burnham, Division of Dry-Land Agriculture) (June 18)

The last planting of the grain sorghum nursery rows and the broomcorn plots is being made today. Yesterday the third and last dates of the varietal plots were planted. Soil moisture is excellent, for although there has been just normal precipitation for the period since January 1, a goodly portion has fallen the last month.

This has no doubt been the most trying year in a decade to get sorghum stands. It seemed as if in every instance when crops were planted shallow a period of hot, dry weather dried the soil down to the seeds before they germinated, while seeds planted deep were in nearly every case buried still deeper by torrential rains followed by crusting of soil before they emerged. In some cases there was only partial emergence until rains came, while in others the crust had to be broken so that deeply buried seeds could emerge.

It is thought now that there are stands on practically all the date-varietal plots of the first two dates, and conditions are so favorable that it seems certain the last date will show good emergence. Many of the sorghum plants have been hail beaten, buried, and sand cut, however, until they almost looked hopeless. Seedlings still show injury.

There was beating rain and hail on June 3, 10, and 13. After each packing, beating, pounding storm the wind blew before fields were dry enough to work, so that there was the problem of breaking the crust not only to permit seedlings to emerge but to stop soil movement. Cotton and cowpeas are injured the worst, while sorghums also show injury.

KANSAS

Fort Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson) (June 15)

The rainfall from June 1 to 15 amounted to 4.86 inches, or nearly 1-1/2 inches above normal for the entire month. A torrential rainfall of 3.49 inches in 45 minutes fell on June 11. Such a rain is a real test for the blank lister-planter system used at this Station in securing stands for sorghum and corn. Had these crops been planted by the usual lister row method, many of the stands undoubtedly would have been destroyed, as the row crop was just emerging. With the present method of planting in shallow furrows, which have been nosed out from filled-in blank rows, very few of the stands of either sorghum or corn were washed out on the projects or on the general farm.

Harvest will begin June 20. Satisfactory yields are expected from all of the small grains, except in certain portions of the wheat nursery where the Hessian fly infestation is heavy. Early strains seems to carry the greatest infestation. The heaviest infestation is on fallow wheat that is near land cropped to wheat in 1931. Leaf rust has broken out severely in late varieties as of this date. The early varieties largely escaped the rust, apparently being too far along for marked infection, or else were less susceptible. Either take-all or foot rot has been found on a number of sections of wheat land in the vicinity of Hays. This particular area has been cropped to wheat continuously for more than 30 years. The diseased areas, which vary in size from a few feet square to several acres, mark the landscape.

The Annual Crops Day at this Station was held on June 14. More than 200 farmers inspected the small grains and whatever legume crops were available.

NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, N. E. Jodon) (June 15)

About half an inch of rain fell on the 10th, and the next evening 1.15 inches fell on the bench and 1.57 inches on the table. The latter rain was torrential at the Substation and was accompanied by hail on the table which shredded the leaves on the young corn. The cooperative corn yield test at Sutherland was severely injured by hail on the night of the 10th. Spring grains were also injured. In many instances barley heads were knocked out of the boot.

Agricultural Experiment Station, Lincoln (Wheat Improvement, C. A. Suneson) (June 14)

Frequent rains for the past three weeks have slightly improved

the outlook for winter wheat, although Hessian-fly injury is extremely abundant in eastern Nebraska. Harvest will begin in a few days.

Leaf rust made its initial appearance on June 6 and stem rust a few days later. If the present weather continues oats probably will suffer considerably from stem rust.

Irrigation facilities for the corn-breeding plots at the Station have been installed in the past month to insure against a repetition of the losses of 1930 and 1931. Additional greenhouse facilities also are being provided, so that the winter-wheat improvement project probably will be assigned adequate permanent space.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard) (June 16)

Frequent rains and warm weather in the first half of June have caused grain to develop rapidly. The earlier varieties will soon be fully headed. A few heads of Sixty-Day oats are partially emerged. Reward wheat will be first headed June 17 and Vaughn barley was first headed June 11.

Single pustules of stem rust and leaf rust were first noted June 6 on Little Club, Hard Federation, and Garnet wheats. Rust is developing rapidly in the nursery. A heavy rust epidemic may be expected this year if the present warm weather and frequent showers and heavy nightly dews continue.

Mr. L. P. Reitz of Bozeman, Mont., was a Station visitor on June 14.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (June 16)

Almost ideal growing conditions have prevailed during the first half of June. Rainfall was abundant and frequent. A total precipitation of 3.09 inches was recorded. Temperatures averaged somewhat above normal but without high or low extremes. The maximum temperature was 83°, and the minimum 50°.

Seed of the hybrid flax plants grown during the winter in the greenhouse at the Arlington Experiment Farm was sown June 3 and 4 and the plants began to emerge June 7, just four days after seeding.

The hemp and special safflower sown in cultivated rows May13 failed to come through except for scattered plants. Flax sown at the same time came up with excellent stands. The heavy rain and snow on May 25 and the freezing temperatures on May 25 and 27, just when the plants should have been emerging, were suspected of smothering or freezing the young plants. The rows were reseeded June 9, but just as most of the young plants were emerging on June 15 they were destroyed by birds or mice. Rows of flax sown at the same time were not injured. Possibly birds or mice destroyed the first seeding, though the evidence was obliterated by the frequent heavy rains the last week in May and the first week in June.

Stands are thin in the noncultivated plots of special safflower and hemp.

All flax in plots and nursery rows and the safflower in triplicate plots are in excellent condition.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (June 16)

Precipitation recorded on eight days in the first half of June totaled 4.07 inches, or about 1 inch above the normal for the entire month.

Because of cool, cloudy weather, corn and proso have grown rather slowly. All other cereal crops are in excellent condition and promise good yields if present favorable conditions continue.

Winter rye is fully headed. Winter wheat and early varieties of spring wheat, oats, and barley are heading.

The plots have been trimmed and varietal stakes set. The nursery has been cultivated and hoed. Spring seeding ended today with the last date-of-seeding experiment with varieties of oats and barley.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith) (June 16)

Heavy showers within the past two weeks have broken the drought in the greater part of the State but have not been general over the Langdon district. Slightly less than an inch of precipitation fell in the first half of June, so crops on well-tilled land are not yet suffering. However, the evaporation has been great because the mean temperature for the first half of June has been almost 10 degrees above the normal mean for the month.

Proso varieties were sown on June 6 and emerged in six days with good stands. Shortage of moisture has prevented weeds from becoming the usual menace, and nursery and variety plot material is making very good growth.

Grasshoppers are hatching in much larger numbers than usual, but no serious damage has been noted on the Substation. A few miles to the east in Pembina County severe losses due to grasshoppers are being reported. Some grain fields as well as gardens have been stripped to the ground. Several counties in this section of the State are conducting extensive poisoning campaigns.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (June 15)

Precipitation totaling 2.95 inches was recorded from June 4 to 9. The rain, besides improving the soil-moisture supply, retarded the action of pale western cutworms and made it possible for spring grain to grow ahead of the weeds.

Growing conditions have been ideal since the rain and all crops have made exceptional growth. Winter wheat is starting to head with a good height.

The symptoms of foot rot have been noted in fields and plots of winter wheat sown August 1, or earlier. Present growing conditions have lessened the danger to wheat from this source for the time being.

OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens) (June 10)

The weather in May in the Columbia Basin of Oregon was unseasonably cool. The highest temperature recorded at Moro was 80° and the lowest 33°. The precipitation totaled 1.93 inches, a little more than twice the normal for May. Of this, 1.12 inches fell on the 20th and 0.47 of an inch on the 29th. These two rains greatly benefited all growing crops.

The first ten days of June have been warmer, the maximum reaching 83° yesterday. On the Station, winter wheat on shallow ground already is showing drought injury. Some of the spring grains are also beginning to suffer from lack of moisture, especially where stands are thick. Spring barley has a better appearance than any other crop.

Winter wheat, which is now heading, is in good condition in most localities. More rain will be needed for normal yields in the drier sections because of the lack of subsoil moisture.

JUL 2 1932

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

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Vol. 24 July 10, 1932 No. 10
Personnel (June 26-July 10) and Field Station (June 16-30) Issue

PERSONNEL ITEMS

Mr. F. A. Coffman left Washington July 7 for Ames, Iowa. He will be at the Iowa Agricultural Experiment Station for about three weeks to obtain data on disease resistance of oats and to make selections for improved oat varieties.

Dr. H. B. Humphrey spent June 28 and 29 in the vicinity of Elk Creek, Va., reading uniform rust nurseries and taking notes on the relation of the wild barberry (Berberis canadensis) to the spread of stem rust. He was accompanied by James Godkin, extension associate plant pathologist, of the Virginia A. and M. College, and assistant county agent R. C. Carter.

On July 8 Dr. Humphrey left by automobile for Ithaca, N. Y., to read the uniform rust nurseries maintained in cooperation with the N. Y. (Cornell) Agricultural Experiment Station. En route he stopped at Furnace, near State College, Pa., to take notes on uniform rust nurseries and the relation of the common barberry (B. vulgaris) to the spread of stem rust.

Mr. M. A. McCall left Washington on June 29 for Madison, Wis., where he will conduct official laboratory research.

He will also travel in Minnesota, North and South Dakota, Montana, Idaho, Washington, Oregon, Utah, Colorado, Nebraska, Kansas, Missouri, Oklahoma, Iowa, Illinois, Indiana, and Ohio to inspect cooperative research and experiments and consult with Division and cooperating State station personnel regarding plans for and conduct of cooperative work.

Dr. M. N. Pope left Washington July 7 for a six-weeks trip in Ohio, Illinois, Wisconsin, Minnesota, South Dakota and North Dakota to study cooperative barley nurseries and experimental fields and to confer with field employees of the Division and cooperating officials of State agricultural experiment stations. Dr. Pope will also visit manufacturers of barley products in Minneapolis, Chicago, and Milwaukee.

Dr. H. A. Rodenhiser left Washington on July 7 for travel in Minnesota, North and South Dakota, Montana, Idaho, Washington, Oregon, Utah, Wyoming, Colorado, Nebraska, Kansas, Missouri, Iowa, and Illinois to take notes on cooperative cereal smut experiments, biologic form nurseries, wheat varietal nurseries, and corn smut experiments. He will

also consult with field employees of the Division and cooperating officials of State agricultural experiment stations regarding field experiments. Dr. Rodenhiser will be in the field about three months.

Mr. S. C. Salmon spent June 28 with Dr. W. B. Kemp, of the University of Maryland, examining wheat fields in northern and western Maryland. Considerable damage was found from Hessian fly and joint worm.

Hessian fly infestation seems to be rather general throughout a considerable portion of the soft-wheat belt.

Mr. Salmon left Washington on July 10 for a four-weeks trip in New York, Michigan, Wisconsin, Minnesota, Montana, North Dakota and South Dakota, to consult with cooperating officials of State agricultural experiment stations regarding experiments with wheat. Mr. Salmon also will visit the Dominion Rust Research Laboratory at Winnipeg, Canada

Dr. Albert L. Smith, of Madison, Wis., was appointed on July 1 as agent in the cooperative rice investigations at Crowley, La. He will assist Mr. J. Mitchell Jenkins, superintendent of the Rice Experiment Station, in conducting the cooperative rice production and improvement program at Crowley, and, in cooperation with Dr. E. C. Tullis, he will take care of certain phases of the field work with rice diseases in Louisiana and Texas.

Mr. T. R. Stanton reports that he found oats rather poor in central Missouri. At Columbia the different varieties and selections had suffered severely from the very dry weather of early spring. The early, rapid growing varieties such as Brunker and Columbia were affected more and in poorer condition than the slower growing Kanota and Fulghum varieties. This condition also was noted at Manhattan and Hays, Kans., Akron, Colo., and North Platte and Lincoln, Nebr. It thus appears that throughout this territory this is a "Fulghum year."

At Manhattan the writer spent considerable time in assisting Dr. Parker in discarding some of the less promising material from the extensive breeding nursery. Most of the selections from hybrids sent to Manhattan from Ames and other breeding nurseries are too late for Manhattan conditions. It appears that more progress will be made by making the selections on the station where the initial tests for adaptability and yield are to be made. At Hays, Kans., the varieties and strains of oats were in excellent condition and some good yields were in prospect.

At Akron, Colo., many of the newly introduced Australian varieties and various hybrid selections which are being grown for the first time will be too late for Akron conditions. Fields of Brunker oats were observed in the vicinity of Akron. In spite of the very dry season a fair yield for dry-land conditions will be obtained. Brunker is attracting the interest of farmers in this section. Oats as usual were in excellent condition under irrigation at Ft. Collins, Colo. The new smut-resistant reselections from various hybrids in which Markton was used as one parent were very uniform in appearance and probably are superior to the old selections.

The oat varieties being grown in plots on cornland at North Platte, Nebr., were rather poor. However, most of the varieties and selections in the nursery grown on fallow were in much better condition. At Lincoln oats were maturing later than usual and many strains were lodged in both field and nursery plots. The various strains of Kherson, such as Nebraska No. 21, Iogold, Iowar, etc., probably will produce the best yields this year. Some of the Burt strains also were standing up well and probably will produce excellent yields.

VISITORS

Dr. E. C. Stakman, of the University of Minnesota, visited the Division on June 24.

MANUSCRIPTS SUBMITTED

34 "Distribution of the Varieties and Classes of Wheat in the United States in 1929," by J. Allen Clark and K. S. Quisenberry, July 1. Tech. Bul.

35 "Inheritance of Stem-Rust Reaction and Correlation of Characters in Pentad, Nodak, and Akrona Durum Wheat Crosses," by Glenn S. Smith and J. Allen Clark, July 1. Tech. Bul.

RECENT PUBLICATIONS

"A Cytological Study of Heterothallism in Puccinia triticina," by Ruth F. Allen. Jour. Agr. Research 44(10): 733-754, pls. 1-11. May 15, 1932. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

B. P. I. Memo.654 July 1, 1932

MEMORANDUM FOR HEADS OF DIVISIONS

In connection with plans for attendance at the Sixth International Congress of Genetics, Ithaca, N. Y., August 24-31, it is probable that few, if any, will be authorized to attend at Department expense. Will you therefore submit the names of the members of your Division who wish permission to attend this meeting at no expense to the Department other than salary.

If you feel that it is especially desirable that any of those listed should be sent to this Congress at the expense of the Department, we would be glad to have such recommendations, although attendance at Department expense will be very limited.

Very truly yours,
(Signed) Wm. A. Taylor,
Chief of Bureau.

NOTE: Members of the Division wishing to attend this Congress will please notify F. D. Richey as soon as possible.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins) (July 5)

Weather conditions in June were excellent for rice. The total precipitation was 6.74 inches and occurred on 11 days. Last year the total for June was 1.77 inches. Temperatures for the month were about normal.

The rice plots are in excellent condition, and promise much better results than for several years.

Work on the station was somewhat retarded by the frequent heavy rains. This was especially true in cultivating cotton and corn plots. The wet weather is having a detrimental effect on these two crops. Boll weevils are rather abundant and dusting is practically impossible under the weather conditions.

While other rice districts did not have the heavy rainfall that occurred in the vicinity of Crowley, there seems to have been a sufficient quantity to prevent any danger from salt water in the very near future.

Rice throughout southwestern Louisiana is, in the main, in excellent condition. The general vigor of the crop is excellent and practically no leaf-spot disease has been noted. Along the Mississippi River the general condition of the rice crops is not so good as is usually the case at this season of the year. This seems to be due to late seeding on account of bad weather and to rather dry weather during much of June. On June 21 some leaf-spot disease was noted in fields in the river section near Donaldsonville.

Recent visitors included Dr. E. C. Tullis, Division of Cereal Crops and Diseases, and Director Dowell and Messrs. C. L. Stracener, C. W. Edgerton, E. C. Tims, and D. E. Ellis, of the Louisiana State University.

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg) (June 30)

The precipitation for June totaled 2.98 inches, or 1.79 inches below normal. All the rain fell during the first half of the month except one shower on the 28th. Corn is suffering more or less because of insufficient moisture. In certain sections of the State the drought is severe.

The lowest temperature was 65° on the 5th, and the highest, 94° on the 23rd.

Detasseling in the crossing plot on the upland was begun on the 15th and hand pollinating in the inbred nurseries on the 21st.

Mr. C. H. Kyle, Division of Cereal Crops and Diseases, visited the Station from June 18 to 20.

ARKANSAS

Rice Branch Experiment Station, Stuttgart (Rice Production and Improvement, C. R. Adair) (June 29)

The following table is a summary of the oat varietal experiment for 1932. The yields for 1930-31 are also included. The very low yields for this year are attributed to the low temperatures in early March and to the heavy infection of crown rust.

The rice nursery was flooded June 4 and was drained today in an effort to control the root maggot, Lissorhoptrus simplex, which is causing severe pruning of the roots.

Yields of winter-oat varieties and strains at the Rice Branch Experiment Station, Stuttgart, Ark., 1931-32

Variety	C.I. No.	Date ripe	Test weight per bu. (Lbs.)	Yield (Bu.per acre) 1931	Yield (Bu.per acre) 1932	Straw (Lbs.per acre) 1932
Nortex	2382	5-26	25.1	105.7	21.3	1866.7
Ferguson No. 922	2150	5-26	24.3	112.8	18.8	1716.7
Fulghum	2500	5-25	26.3	103.9	18.2	2233.3
Appler	1815	5-25	25.6	102.9	17.7	1816.7
Fulghum	2499	5-25	25.8	103.9	16.9	2275.0
Ferguson No.71	844	5-26	24.4	109.4	13.3	1708.3
Lee (check)	2042	5-26	25.4	94.7	12.8	1490.4
Custis	2041	5-26	26.0	96.9	12.5	1900.0
Frazier	2381	5-23	24.7	89.6	9.4	1083.3
Arkansas No.1992	----	5-25	25.6	90.6	9.1	1408.3
Arkansas No.19322	----	5-25	25.5	91.4	8.1	1341.7
Fulghum	708	5-22	25.3	98.7	8.1	1058.3
Kanota	839	5-22	24.8	98.3	8.1	991.7
Arkansas No. 6	----	5-25	26.6	87.5	6.8	1366.7
Arkansas No.12	----	5-24	26.3	93.8	6.8	1183.3
Hairy Culbertson	2505	5-25	26.2	81.8	6.3	1266.7
Arkansas No.15	----	5-25	24.7	70.6	5.5	1191.7
Arkansas No. 1	----	5-25	23.4	87.7	5.2	1116.7
Winter Turf (Coker Seed Co.)		6-3	25.5	91.7	3.9	1475.0
Spören Gray Winter	2506	6-3	25.9	96.4	2.8	1175.0
Winter Turf	541-4	5-25	21.1	84.6	1.1	1016.7

OHIO

Agricultural Experiment Station, Wooster (Corn Investigations, G. H. Stringfield) (June 27)

Lack of moisture continued to hold corn back throughout most of June, although experimental plots have been much benefited by good rains in the past week.

An unusual infection of cortical rot has appeared in the corn nursery. Straw of oats will be short and yields probably low.

ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert) (July 1)

Although bacterial blight is not so prevalent in dent corn this year as it was last year, more than 50 per cent of the plants in some inbred strains are infected. Many strains apparently are highly resistant; those that apparently were highly resistant last year also are highly resistant this year.

The intense heat of the last few days of June caused top wilting and sun scalding in a number of the heat-susceptible inbred and cross-bred strains.

In general, conditions have been very favorable for growing corn, especially early planted varieties. A few tassels are appearing in some of the earlier strains.

IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett) (June 23)

Some of the earliest wheat strains started to ripen on June 20. An occasional early sown plot of early oats is expected to ripen by June 26 and all the early varieties by July 1. Wheat harvest will start at least by July 5 and harvest of barley and early oats soon thereafter.

There is an abundance of scab and some rust.

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins) [June 30]

The weather of the first 20 days of June was very wet. Numerous heavy downpours washed out much corn and interfered greatly with early cultivations. Late plantings in the date-of-planting experiments which were scheduled to be done June 15 were not planted until the 20th.

Most of the corn is now about hip high and some on the Station has been laid by. With the excessive top growth due to the early rains, however, rain will be needed in early July to obtain a good crop.

Thinning was completed promptly in slightly less than a week. Early stand counts were completed yesterday; work was slowed up materially because of numerous early suckers.

Oats on the Station have a good appearance. Winter wheat is filling well but is rather badly lodged. A crop of about 40 bushels per acre is expected.

Agricultural Experiment Station, Ames (Crown Rust of Oats, H. C. Murphy) (June 30)

The uniform cereal rust nursery at Urbana, Ill., was inspected by the writer on June 28. Leaf rust of wheat showed a maximum infection of 85 per cent and was uniformly heavy on all susceptible varieties. Stem-rust infection of wheat was light - a maximum of 10 per cent on winter wheat and a trace on spring wheat. Winter wheat was fully ripe and spring wheat was in the dough stage. Oats in the Station plots were being harvested at the time of this inspection. In the uniform cereal rust nursery early varieties were in the milk to dough stage. Crown rust of oats showed a maximum of 80 per cent in the Station plots and 60 per cent in the rust nursery, while stem rust of oats showed a maximum of 50 per cent and 25 per cent, respectively. Leaf rust of wheat and crown and stem rust of oats probably will cause considerable injury to susceptible varieties in the vicinity of Urbana.

At Ames, leaf rust of wheat is very severe, the most susceptible varieties showing 100 per cent infection. Stem rust of wheat shows a maximum of about 25 per cent on the most susceptible winter-wheat varieties and is just appearing on the spring wheat. Winter wheat is ready to harvest and the early spring-wheat varieties are showing first ripe. Crown and stem rust of oats each show 100 per cent infection on the check rows and the more susceptible varieties. A more nearly perfect epiphytotic of these two rusts in the crown rust nursery could hardly be imagined. Initial infections of both rusts were obtained by hypodermic inoculations in the check rows and since then winter-wheat conditions have been ideal for the distribution and the development

of the rusts. Many of the new hybrids are showing high resistance to both rusts and both smuts. Early varieties of oats are now showing first ripe and consequently all rust readings must be obtained within the next ten days.

Scab on wheat is very severe in the vicinity of Ames, with a maximum of 50 per cent infection on many varieties. Most of the cereal diseases are above normal as a result of very favorable weather conditions.

Dr. H. B. Humphrey was here for conference and inspection of the cereal nursery on June 16 and 17.

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson) (June 28)

Field surveys in Wisconsin have shown that stripe disease and loose smut of barley are unusually prevalent. The following summary of survey data from the southern part of the State illustrates this high seasonal infection and shows the difference in relative susceptibility of the three varieties.

Variety	Average percentage of infection in southern Wisconsin	
	Stripe disease	Loose smut
Pedigree 37 and 38 Smooth Awned	0-T	4.8
Oderbrucker (Pedigree 5 and 6)	2.9	1.8
Velvet	12.7	8.1

Individual fields of barley were found having as high as 27 per cent of stripe disease, 20 per cent of loose smut, and 1 per cent of covered smut.

Leaf rusts on all cereals have been very prevalent and occur in epidemic form on spring and winter wheats. Heavy infections of leaf rust of barley, Puccinia anomala, have been located in several sections. Usually this rust is relatively scarce and appears only very late in the season. Stem rust is just beginning to spread on spring cereals but has completely destroyed certain fields of winter rye near Marshall. In this section barberry is very abundant over a considerable area.

Scab is developing in epidemic form in the winter-wheat selections under the artificial inoculation cages at Madison. Dr. A. L. Smith reports that in Southern Iowa scab losses in winter wheat vary from 5 to 15 per cent, and the infection in some fields averages 50 to 60 per cent. Barley-scab infection is just commencing under the inoculation cages and in the fields in Iowa and Illinois, although no unusual infections have been reported. Dr. Smith reports heavy rainfall throughout southern Iowa. The precipitation in southern Wisconsin over the week-end averaged about 1 inch; the humidity was high and moderate temperatures followed. Gibberella perithecia with mature ascospores is very abundant throughout the northern part of the Corn Belt, indicating that scab infection will be heavy if weather conditions remain favorable for the next 10 days.

Dr. A. G. Johnson was a visitor on June 7.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, E. R. Ausemus) (July 2)

Wheat on the Station continues to make fair growth. Winter wheat will be harvested within a week. Spring wheat is fully headed. Wheat maggots and sawflies are causing considerable injury in some places.

Stem rust has not developed due to the continued dry weather. The spring-wheat hybrid material in the rust nursery has been irrigated in an effort to get better plants and a better development of rust.

Corn is in excellent condition both here and in southern Minnesota.

Dr. H. K. Wilson, Mr. Doxtator, and the writer visited the S. E. Experiment Station at Waseca on June 29. All crops were in excellent condition. There was heavy leaf-rust infection on all winter wheats, the more susceptible varieties having 90 per cent infection. Stem rust was developing. Spring cereals were just headed and conditions were favorable for good crops in southern Minnesota.

Mr. A. C. Dillman is now at the Station, studying the flax varieties in the experiments.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (June 30)

The maximum temperature in June was 97°; minimum, 60°; mean, 79.8°. The precipitation totaled 4.82 inches.

The weather in the first half of June was favorable for harvesting small grains. Frequent showers, beginning on the 21st, have made threshing impossible. Some injury to the quality of grain has been done during the past two weeks.

All small grains were harvested during the month. Row crops have made excellent growth because of abundant moisture.

The writer returned June 30 from harvesting the hard wheat nursery at Amarillo and the cooperative wheat varietal tests in the Panhandle. Wheat is in good condition between Denton and Childress but very poor on the high Plains. In the vicinity of Childress the quality of the grain has been injured by frequent rains. Harvest is much delayed. On the Plains wheat has been injured by winds, low temperature, drought, and recently by too much rain. A severe freeze late in March entirely killed the varietal test at Price Memorial College at Amarillo. The nursery was not injured. Very high winds in March and April blew out thousands of acres of wheat in Hereford and Castro counties. This was followed by a 2-month drought which further reduced wheat prospects. Since June 1 there have been frequent rains and severe storms. At Amarillo 9 inches of rain have fallen since June 1. Very little wheat has been harvested because of the wet weather. The wheat has tillered again and fields that were ripe two weeks ago are now green. Weeds are growing rapidly and probably will cause trouble by the time the late heads are ripe.

On June 19 a hailstorm destroyed the crops on 300 sections in Hall County. On the following day wind and hail destroyed the crops in a strip about 17 miles wide and 10 to 15 miles long in Hale and Swisher counties, and in smaller areas in other sections. Near Amarillo crops, including the wheat nursery, were destroyed. Only about 100 plots had been harvested in the nursery; the remainder was lost.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger) (June 30)

After relatively dry weather in May, the rainfall in June was more than treble the average. This excessive moisture has interfered with farm work, such as planting, thinning, and cultivating sorghums. Some farmers have reported replanting sorghums 3 and 4 times, with the stands still uncertain.

The work on the sorghum and broomcorn project has been carried on between rains, and while some washing out or under has occurred, the experiments are comparable in most instances.

The maximum temperature for June was 96° on the 18th, the minimum, 57° on the 6th and 14th. The precipitation from June 1 to 29, inclusive, totals 9.21 inches, recorded on 15 days.

Station workers desiring a small quantity of broomcorn brush for cleaning nursery threshers can be supplied from here.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens) (June 30)

Excessive rainfall in June has interfered with wheat harvesting and threshing. All nursery material was cut and put under cover before being damaged, but sprouting has occurred in shocks from the plot experiments. Threshing of the plots will begin as soon as the weather permits.

Mr. S. C. Salmon and Dr. K. S. Quisenberry recently visited the Station to examine the wheat experiments.

KANSAS

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson) (June 30)

The weather in June has been ideal for the growth of corn at Manhattan. Early planted fields are shoulder high and are beginning to tassel. Most corn is unusually clean, owing to favorable weather during cultivation. Stewart's disease is very prevalent in sweet corn and for the first time has been noted in plantings of field corn. Jap Hulless pop corn and Blue Squaw seem to be the most susceptible varieties. Although not under exactly comparable conditions, it is of interest that in the writer's garden hybrid sweet corn from Purdue University has not shown a single infected plant.

Wheat harvest was early and threshing is now in full swing. There were excellent yields at the agronomy farm.

Stem rust of oats was more severe than for many years at Manhattan, and oats yields probably will be low.

Chinch bugs are causing trouble for the first time in several years and a number of tar lines are being maintained at the agronomy farm.

Fort Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson) (July 2)

The rainfall for June was 8.57 inches, the third highest on record for 65 years. It has delayed field work considerably. The harvest on the cereal project is about finished. Some good yields of various crops will be recorded. Threshing will begin next week. Row crops, including corn and sorghums, are being laid by at this time.

The construction of a new seed laboratory was begun on June 30. The structure will be of brick and tile and fireproof throughout.

The following were visitors in June: President F. D. Farrell, Dean L. E. Call, and Messrs. R. I. Throckmorton, H. H. Laude, J. H. Parker, C. O. Johnston, F. C. Fenton, and F. L. Duley, Kansas State College; Messrs. L. W. Kephart, H. L. Westover, C. E. Ramser, L. A. Jones, H. H. Bennett, T. R. Stanton, K. S. Quisenberry, J. O. Belz, and H. K. Walkden, U. S. Department of Agriculture; C. E. Coles, of the Colby Station; and Mr. Garver, the State Budget Director.

COLORADO

United States Dry-Land Field Station, Akron (Wheat Improvement, J. J. Curtis) (July 1)

The precipitation for June totaled 2.80 inches. Recent rains have been very beneficial to all cereal crops on the Station. The

rains of late June came too late to materially benefit the earlier varieties of oats and barley, but they greatly benefited the later varieties, such as Fulghum oats and Horn barley. Rains in May and early June were normal but crops suffered from drought, as there was no subsoil moisture carried over from last fall and winter.

Winter wheat is very thin and late. Wheat on cornland is a total failure. Wheat on fallow, while thin, will produce some grain.

The yields of oats and barley on cornland will be very low. The early varieties of oats, such as Brunker and Burt (C. I. No.2491), in both field and nursery plots are rapidly ripening. The various selections of Fulghum and Kherson oats are still green and with the extra moisture of late June probably will produce the highest acre yields. Most of the Australian oat varieties, as well as the different hybrid strains, all of which are being grown for the first time, appear to be too late for Akron conditions.

Fields of Brunker oats and Club Mariout barley in the vicinity of the Station have, on the average, a better appearance than the local varieties. Some fields of Brunker oats, grown in a section northeast of the Station which had very little rain since early spring, will produce from 10 to 15 bushels an acre. This variety apparently is very drought resistant.

Corn, proso, and sorghums on the Station are making rapid growth, and better than normal crops are expected if favorable conditions continue.

The following were recent Station visitors: Mr. Wayne Austin, Colorado Agricultural Experiment Station, Mr. E. A. Lungren, Division of Barberry Eradication, and T. R. Stanton, Division of Cereal Crops and Diseases.

NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, N. E. Jodon) (July 1)

The rainfall in June was slightly over 5 as compared to a normal of 3.25 inches. The greater part of this came in two storms when the rain fell too rapidly to penetrate the soil where needed.

Corn is in excellent condition, although unevenness of emergence is still apparent. Sorghum varieties are also in good condition. Proso stands were thinned considerably, probably on account of the washing rains.

The barley varieties are ripening rapidly but unevenly. They were too far advanced to benefit from the rains. Oats were injured less by hail and have recovered remarkably. Two weeks ago barley was in better condition than oats. Winter wheat probably will ripen late because of late emergence. Smut counts are nearly completed in the irrigated smut nursery. The degree of infection is less than it was last year. A rather large group of highly resistant lines is being isolated.

SOUTH DAKOTA

United States Field Station, Redfield (Wheat Improvement, E. S. McFadden) (July 1)

The precipitation in June was somewhat normal and temperatures for the most part were not excessively high.

Crops of all kinds are in excellent condition, and the indications are that most of the small grains will get in ahead of serious injury by grasshoppers. Barley harvest will start right after the Fourth of July, which is about five days earlier than usual. Winter wheat is also earlier than usual as a result of the high temperatures in May. Spring wheat is several days later than last year.

Leaf rust of wheat was first observed about the middle of May and is very abundant. Stem rust of wheat was first observed on June 11 and there is a heavy infestation on the border rows of Hard Federation around the nursery. It is rapidly spreading to other susceptible varieties in the nursery. Stem rust of oats and crown rust were first observed in the uniform rust nursery on June 25, and have not made much headway to date. Black chaff is becoming rather prevalent in many of the Hope descendants.

The entire time from June 18 to 25 was devoted to cross breeding wheat, the conditions having been most favorable for this kind of work. Temperatures were mild with high humidity and very little wind. Over 250 heads, representing fifty different crosses, were worked.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard)(July 1)

The rainfall in June was about normal, totaling 3.33 inches; all but 0.24 of an inch of this fell in the first half of the month. Wheat, oats, and barley varieties are taller than usual this year as a result of the heavy rains of May and early June.

All varieties and strains are first headed. The rust inheritance material sown on May 3 is heading rapidly.

A very strong northwest wind on June 30 caused some lodging and breaking of stalks in the nursery.

Station visitors in the last half of June included Mr. J. Allen Clark on June 21, and Mr. Keith Barons, of University Farm, St. Paul, Minn., on the 28th.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)(July 2)

Hot weather prevailed throughout the last half of June. The maximum temperature was 87°, the minimum, 45°. Very little rain has fallen since the 10th, but moisture from the heavy rains of late May and early June saved crops from serious drought injury.

Flax canker is very severe in flax varietal plots. A high wind June 30 broke off many plants that might otherwise have recovered. The wind velocity averaged 22 miles an hour from 1 to 6 P. M. Some canker injury was noted in the flax-spacing experiment where stands were thin. Practically no canker injury was noted in flax nursery rows where stands were normal and where prompt cultivation followed each rainy period.

The hot weather hastened the development of flax. The May 2 sowing of the seed-treatment experiment began to bloom June 18 and is now in full bloom. Flax in the varietal plots commenced blooming June 23.

About 3,000 farmers visited the Station June 22 when a Farmers' Field Day was conducted by the North Dakota Agricultural College Extension Division under the immediate supervision of County Agents R. C. Newcomer (Morton County) and R. O. Putman, (Burleigh County) and W. H. McNutt, agricultural agent of the Soo Railroad. The questions asked in connection with the flax experiments indicated an interest in varieties recommended for this locality and in methods of growing flax for weed control on old land.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (June 19)

The oat nursery looks especially well this year. The plants are a rich dark green color and are beginning to head. Oats in the plots appear just as healthy but the stand was thinned somewhat by freezing weather at emergence. A few more rains like those of the past two weeks would insure a bumper crop in this section.

June 30

Crop prospects are better than they have been for several years owing to favorable temperatures and above-normal rainfall. The growth of grass on the prairie is the best in many years, so there is an abundance for hay and pasture.

Winter wheat and rye in both field and nursery plots are in excellent condition and have been fully headed for sometime. Early varieties of spring wheat, oats, and barley are fully headed and late varieties are beginning to head. Flax varieties are beginning to blossom and promise good yields.

Leaf rust appeared on winter wheat about the middle of June and a moderate infection has developed. No stem rust has yet been found.

Grasshoppers are becoming numerous in local sections, although they are not so serious here as in many other counties.

The rainfall for June was more than 5 inches, or about 2 inches above normal.

Hot, sunny weather prevailed during the last week of June and crops made rapid development. Corn in the nursery is about 18 inches high. Cereal crops are heading about a week or more earlier than usual.

A few crosses with wheat and oats are being made in the nursery.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith) (June 30)

Most of the wheats in the general yield test nursery and nearly all of the oat nursery are fully headed. This is about 10 days earlier than heading occurred in 1931 and no doubt is the result of unseasonably warm weather the first half of June.

The mean temperature for June was 66.4°, about 6° above normal. The precipitation totaled 3.10 inches. More than half this amount fell on the 18th, when lack of moisture was becoming serious.

Leaf rust was first observed on June 21 and stem rust the following week. This is two weeks earlier than rust was discovered in 1930 and 1931. Spread of infection has been gradual.

Although grasshoppers are very numerous, they have caused but little injury to crops in this immediate vicinity and it is reported that red mites are attacking large numbers in the heavily infested regions nearby.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (July 1)

The rainfall for the last half of June was very light and for the past few days all crops, especially spring grains, have been in need of moisture. Spring grains tillered considerably during the cool, wet weather and have made such excessive growth that any lack of moisture is immediately noticeable. All early sown spring grains have burned to some extent.

Winter wheat has made very good growth. Some of the taller varieties are four feet high and most of the varieties in both plots and nursery have passed the blossom stage. All spring grains are heading rapidly.

The precipitation in June was 3.63 inches, most of which fell the first two weeks. The maximum temperature was 90° on the 29th, minimum, 46° on the 5th and 8th, and mean, 58°.

IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, Harland Stevens) (July 1)

For the past 10 days the maximum temperatures have been 90° or

above. The precipitation for the first 15 days of the month totaled 0.74 of an inch. There is ample irrigation water to insure good crop yields.

The barley and wheat nurseries and plots are fully headed and the oats are fast approaching the fully headed stage. The barley in fields throughout this section is in excellent condition and some very large yields are expected.

Grasshoppers and alfalfa weevil are causing some damage to alfalfa and other forage crops, especially the alfalfa seed fields.

WASHINGTON

Agricultural Experiment Station, Pullman (Wheat Improvement, O. A. Vogel) (July 6)

Serious burning of winter wheat in the western part of Whitman County was prevented by a rain on July 3, which was followed by cooler weather. Approximately 0.65 of an inch fell at Pullman.

The rain and wind caused considerable lodging of all Turkey types of wheat on summer fallow at Pullman. None of the club and Fortyfold types of wheat was damaged.

The spring wheats in the Pullman nursery were headed by July 4. The winter wheats in the Walla Walla nursery will be ready to harvest next week.

Smut infection in the eastern part of Washington is considerably less than last year. One field of Fortyfold has 15 per cent infection, while in most of the fields infection ranges from a trace to five per cent.

From a series of fall plantings of spring wheats in 1931 three highly smut resistant white spring wheat hybrids were found to be more winter hardy than Federation. This fall they will be tested further for yield in Walla Walla County, where Federation is one of the important fall-sown wheats.

OREGON

Pendleton Field Station, Pendleton (Cereal Agronomy, J. F. Martin) (June 27)

Warm dry weather prevailed in June. The total precipitation was 0.15 of an inch, which fell on the 14th and 15th. The maximum temperature was 97° on June 27.

Winter wheat is ripening rapidly and should be ready to harvest at the normal time, or about July 10 to 15. Spring wheat will be several days later than usual, however, as the heads scarcely have started to fill at this time. Spring barley and oats are maturing rapidly and will not be far behind the normal dates of ripening.

Yields of winter wheat on the better lands should be good but some grain on the shallower soil is beginning to show the effects of drought. Weeds are prevalent in some sections. There is less smut on the Station than was present in the wheat last year, but in some sections of Umatilla County more is reported.

The annual Field Day was held on June 24 and was attended by about 75 farmers. Among the visitors were Dean and Director W. A. Schoenfeld and Prof. G. R. Hyslop, of Corvallis, Messrs. D. E. Stephens and M. M. Oveson, or Moro, Oreg.; and Messrs. B. B. Bayles and J. Allen Clark, of the Division of Cereal Crops and Diseases.

Agricultural Experiment Station, Corvallis (Foot Rots of Wheat, Roderick Sprague)(July 1)

As indicated by observations made from June 13 to 21, Cercosporella

foot rot is more severe and more widespread than it has been since 1928. However, in sections where the percentage of available soil moisture was low at seeding time foot rot is light, and in places where the grain did not emerge until very late foot rot is almost absent. A case of moderate infection was found near Anatone, Asotin County, Wash., in a previously unreported section. The disease there occurs in a crescent-shaped area about a mile wide at the center and sweeping in an arc at least 12 miles long. It occurs as usual in fine sandy loam soil and occupies a belt near the upper limits of the winter-wheat area a mile or so below the beginning of the Ponderosa-pine and spring-wheat belts. The vegetation here, as in other Cercosporella areas, is characteristically Agropyron-Festuca sod grass prairie. The elevation is 3,600 feet and the average annual rainfall is about 20 inches.

A foot rot condition probably caused by a Helminthosporium occurs in the Turkey-wheat belt in Asotin County, Wash., and in the vicinity of Moro and in parts of Wallowa County, Oreg., as well as in scattered sections throughout the "Inland Empire."

Messrs. B. B. Bayles and W. M. Bever, Division of Cereal Crops and Diseases, visited the Station in June.

CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, L. L. Davis)(June 30)

Very warm weather for the past two weeks has been beneficial to the California rice crop. Cool weather in May and early June resulted in comparatively poor stands on some rice fields and growth has been slow. It is estimated that the crop in general is two weeks later than it was last year. With favorable conditions during the remainder of the summer the lateness of this season's crop may be reduced to some extent.

Three new hybrid rices of the medium-grain type, which are being grown this year for the first time in 1-66th-acre plots, are being observed with much interest. At present they look well and the stands are as good as or better than many of the other varieties. In the fertilizer plots the use of nitrogen is beginning to show beneficial effects. The effects in the plots treated with the various forms of nitrogenous fertilizers are darker green color of the foliage, more stooling, and slightly taller plants.

C E R E A L C O U R I E R

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Personnel (July 11-25) and Field Station (July 1-15) Issue

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PERSONNEL ITEMS

Dr. J. A. Faris left Washington on July 18 to visit field stations in Wisconsin, Iowa, Illinois, Minnesota, North Dakota, and South Dakota, where he will take data on cooperative cereal-smut experiments and confer with State experiment station officials on cooperative bunt research.

Dr. H. B. Humphrey left Washington on July 24 for Iowa, Minnesota, South Dakota, North Dakota, and Manitoba. He will take notes on cooperative rust nurseries, make collections of rusted cereals, and confer with project leaders and officials of State agricultural experiment stations.

Dr. A. G. Johnson left Washington July 20 for a 3-week trip in South Dakota, North Dakota, Minnesota, Wisconsin, Illinois, and Indiana to inspect grain fields for diseases and to confer with Division personnel and State officials regarding cooperative cereal-disease investigations.

Dr. J. H. Martin will leave Washington on July 27 for travel in Missouri, Kansas, Oklahoma, Texas, New Mexico, Arizona, California, Utah, Colorado, and Nebraska, where he will conduct physiologic and breeding experiments with grain sorghums and confer with employees of the Division and with officials of State and Federal experiment stations regarding future work.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor) (July 22)

The harvest of small grains is practically finished. Weather conditions for both cutting and threshing were favorable. On the whole yields were poor, especially of wheat which produced the lowest yield in 23 years. A dry seed bed caused poor stands and slow fall growth, the unusually mild fall and winter were more favorable to

plant aphids than to the small-grain plants, and much outright killing occurred. The March freeze following a warm spell added to the killing and injury. The tip spikelets of the heads of most varieties of wheat failed to develop.

Rye yields were at least 25 per cent below average, but the quality of the grain was excellent. Selection No. 41, an Abruzzes type, Dakold, and Smooth Neck, a Rosen selection, were high yielders.

Yield of winter-rye varieties grown in single 1/20th-acre plots at the Arlington Experiment Farm, Rosslyn, Va., 1932

Variety	C. I. No.	Yield(Bu.per acre)
Selection 41	---	30.0
Dakold	959	29.4
Smooth Neck	---	28.3
Star	---	27.4
Von Rümker No. 2	133	26.8
Rosen	195	25.9
Abruzzes	40	25.6
Rimpau	126	20.5
Von Rümker No. 1	173	15.1

Winter spelt yields were approximately 20 per cent below average, yielding comparatively better than wheat and rye.

Yields of winter spelt grown at the Arlington Experiment Farm, Rosslyn, Va., 1932

Variety	C. I. No.	Yield(Bu.per acre)
Bearded Winter	1724	64.4
Red Winter	1772	56.0
Alstroum	1773	55.0
Do.	3264	48.1

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(July 15)

The maximum temperature for the first 15 days of July was 97°, the minimum, 69°. The precipitation totaled 2.85 inches, or 0.73 of an inch more than the average rainfall for the entire month.

Frequent showers in the last half of June and the first week in July prevented threshing of field grain. All small grain was materially damaged in the field. Threshing started about July 11. Because of discolored and sprouted grain, wheat is selling for 19 cents and oats 8 cents a bushel. A few fields of oats were so badly rotted that the elevator would not even buy them.

Field threshing was started on the 11th. Most of the nursery grain was threshed before that date. Nursery grain is of good quality and yields will be high. Field grain is badly discolored and yields were reduced by weathering.

United States Dry-Land Field Station,Dalhart (B. F. Barnes and E. R. Steen) (July 15)

Grain sorghums on the Station are beginning to grow nicely, after a late start because of heavy rains in June. Despite the storms and packing rains in June the plots are all up with good to excellent stands, the listed plots having the poorest stands.

The first heads appeared on July 11 in the May 15 planting. The earliest varieties to head were Dwarf hegari and Sudan grass. Thinning of grain sorghums has been in full swing for the past two weeks and probably will be completed by the end of this week.

Reed kafir is the only variety in the sorghum smut nursery with a satisfactory stand. The heavy rains fell just after the seed germinated and covered the seedlings so deep that most of them did not come up. An effort was made to get stands by raking the soil from the top of the rows with a garden rake but it was all in vain.

Grass on pasture land began to dry the early part of the week, but the grain sorghums have not shown signs of lack of moisture to date. The sorghums are being cultivated after thinning. It is expected they will make rapid growth, with the present amount of moisture, until heading time.

The precipitation for the first half of the month was 0.30 of an inch. A shower on July 10 greatly aided the thinning process for two or three days.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger) (July 15)

In contrast to extremely wet weather in June the weather so far in July is dry. The precipitation has totaled only 0.02 of an inch. The maximum temperature was 100° on the 7th, the minimum, 63° on the 1st.

The experimental sorghums and broomcorn have been thinned to stands and cultivated, and the roadways have been trimmed. Counting of plants is scheduled to be done next. A few heads of feterita are showing in the first date of planting.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens)(July 15)

Threshing of winter wheat plots and nursery was finished on July 13. As was expected, because of the early spring drought and rains late in the spring, the later maturing varieties produced the highest yields. The following table shows the yields of the winter-wheat varieties in the varietal experiment:

Average yields of winter-wheat varieties grown in 1/50th-acre plots at the Southern Great Plains Field Station, Woodward, Okla., 1932

Variety	C.I.No.	Yield (Bu.per acre) Two plots on fallow	Average of two plots on cropped ground	All four plots[a/]
Hard Red Winter:				
Kharkof (Hays No.2)	6686	53.7	33.3	43.5
Kharkof	1442	53.7	31.9	42.8
Local Turkey	--	52.2	31.8	42.0
Redhull	--	50.6	28.8	39.7
Cheyenne	8885	51.3	27.9	39.6
Nebraska No.60	6250	50.9	28.3	39.6
Tenmarq	6936	49.1	29.4	39.3
Oro	8220	49.8	28.4	39.1
Eagle Chief	8868	48.6	28.5	38.6
Kanred	5146	49.5	27.1	38.2
Turkey (Goodwell 102 P)	--	47.6	28.5	38.1
Superhard	8054	46.5	28.4	37.4
Blackhull	6251	45.5	26.7	36.1
Kanred x Marquis	10090	44.8	26.6	35.7
Prelude x Kanred	8886	45.9	25.0	35.5
Cooperatorka	8861	43.6	23.5	33.6
Early Blackhull	8856	37.3	22.6	30.0

Variety	C.I.No.	Yield (Bu.per acre) Two plots on fallow	Average of two plots on cropped ground	All four plots[a]
Soft Red Winter:				
Sibley No.81	10084	43.9	30.0	36.9
Fulcaster	6471	45.0	26.7	35.8
Denton	8265	42.5	25.7	34.1
Kawvale	8180	41.7	26.4	34.0
Harvest Queen	6199	39.3	22.8	31.0
Nebraska No.28	5147	31.2	15.4	23.3

[a] The average for all four plots in all cases is not the exact average of the other two averages, as all averages were computed directly in pounds and then in bushels per acre.

KANSAS

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)(July 11)

As much of the wheat was dead ripe by July 1, the date of harvest was one of the earliest on record. The harvest season has been very unfavorable because of frequent heavy rains and storms. Considerable wheat still awaiting the combines is badly lodged and probably will be very poor in quality. Reports from localities where harvest is finished seem to justify the low wheat estimates for the State of Kansas. Yields vary from 1 to 30 bushels an acre, a great many fields yielding 7 to 10 bushels.

Rust on small grains was prevalent in the eastern half of Kansas, but very light in the western half. Stem rust on oats was unusually severe as far west as Hays. Crown rust was prevalent only in certain localities. Stem rust on winter wheat was late in developing and most varieties escaped injury. Very susceptible varieties, such as Harvest Queen and Cooperatorka, were heavily infected just before maturity. Leaf rust of wheat was very severe by midseason and was undoubtedly a factor limiting the yield of susceptible varieties in the vicinity of Manhattan.

The take-all foot-rot of wheat again was prevalent in the central parts of Kansas and Oklahoma. However, it was not so severe this year as it was the past two years. It was very difficult to make estimates of losses in certain sections because the wheat was stunted by the late March freeze.

One interesting peculiarity of take-all was well illustrated this year. Fields infested with the foot-rot for years failed to show any sign of it this year, while other fields which were never infested were badly diseased.

The dryland foot-rot of the Helminthosporium type was present in the drier regions of Texas, Oklahoma, and Kansas. Its severity was not great, no doubt because of the late germination of most fall-sown wheat. Occasionally, where an isolated shower brought up early sown wheat the disease was severe.

NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, N. E. Jodon) (July 15)

No rain of any consequence has fallen since July 2, when 1.65 inches was recorded. The past few days have been hot, causing grain to ripen rapidly. There was a hot wind and dust storm on the 12th. Corn is beginning to show the effects of drought. Soil moisture reserves are low.

Spring-grain varietal plots are being cut with a buncher attachment on the mowing machine. Ripening is uneven. The winter-wheat varieties will be harvested about the middle of next week. They are about three weeks later than usual because of their late emergence. No winter-wheat nursery material will be harvested except for seed. Nearly all the selections in the barley and spring-wheat nurseries are ripe. Very few selections in the oat nursery have ripened.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard)(July 16)

It seems probable that harvest will be early this year. Early varieties of wheat are ripening fast. Vaughn, Glabron, Featherston, Trebi, and Odessa barleys will be fully ripe next week. Sixty-Day, Iogold, Edkin, and Gopher oats are turning rapidly.

Leaf-rust notes have been taken and some interesting varietal differences are evident. Stem rust is generally distributed in the nursery but it probably will not develop enough to reduce yields.

Mr. H. G. Ukkelberg, University Farm, St. Paul, Minn., was a visitor on July 11.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)(July 16)

Favorable weather prevailed throughout the first half of July. Rains totaling 1.77 inches provided abundant moisture for crop development. Temperatures averaged somewhat below normal for July. The maximum for the season to date was 95° on July 11. The minimum temperature for the first half of July was 48° on July 9.

Flax sown May 20 in the seed-treatment experiment has almost finished blooming and the early bolls are turning brown. Most of the other flax in plots and nursery rows is in full bloom.

Wilt mortality is very satisfactory in the flax-sick soil nursery. Rows of susceptible varieties and many F_3 progeny rows grown for the first time on flax-sick soil are already eliminated. Some selected varieties grown in triplicate rows are entirely wilt free to date and in many others only occasional wilted plants have been noted.

Flax rust, first noted July 11, apparently is spreading rapidly in the flax nursery on low land.

Mr. A. C. Dillman, Division of Cereal Crops and Diseases, visited the Station July 6.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (July 16)

The weather was cool during the first week of July. The precipitation totaled 0.72 of an inch. Hot, dry weather prevailed during the past week, and crops have ripened rapidly.

Harvesting of cereal varieties began today with the cutting of all field plots of winter wheat and winter rye and all plots of barley except Wisconsin No. 38. All plots in the winter nursery were trimmed and tagged preparatory to harvest on Monday.

Early varieties of oats and spring wheat will be ready to harvest in another week.

Strains of corn in the nursery are tasseling and silking, and ears for selfing and crossing are being bagged.

The annual Substation picnic was held on July 15 and the attendance was fairly good.

Recent visitors included Mr. J. Allen Clark and Dr. C. F. Marbut, U. S. Department of Agriculture, and Dr. H. L. Walster, North Dakota Agricultural College.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(July 15)

Growing conditions have been very favorable during the past two weeks. The precipitation totaled 1.77 inches and temperatures have been moderate. The height of the cereal plants promises to be the greatest since 1928. Yields will be better than average provided grasshoppers do not injure the crops.

The weather was too cool and moist for grasshoppers to cause serious injury until the last few days, when higher temperatures prevailed and extensive feeding was observed. Poison-bran bait is being distributed in nursery and plots with satisfactory results. However, on hot days large numbers of hoppers are seen migrating at high altitudes and since no organized poisoning campaign is being conducted in this district, no doubt control will be largely dependent on weather and other factors. A few hoppers have been found dead from a fungous disease, and larger numbers are being destroyed by a small red insect parasite.

Bunt nurseries show a fairly heavy infection in susceptible varieties. Leaf-rust infection is very heavy, while stem rust is not so prevalent.

Crossing is in progress.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (July 15)

Growing conditions in the first two weeks of July have been generally favorable. Intermittent showers and cool days have saved spring grains from excessive burning. Winter wheat appears to be filling in good shape and yields of 20 to 25 bushels an acre can be expected from the best fields.

The maximum temperature was 88° on the 13th; minimum, 39° on the 4th. The precipitation totaled 0.70 of an inch.

The annual Judith Basin farmers picnic was held on the Station grounds July 14. The attendance was good.

IDAHO

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford and W. M. Bever) (July 1)

Uniform rust nurseries were inspected by the writer at Corvallis, Oreg., on June 22 and 23. Leaf-rust infection was very heavy, some wheat varieties showing a maximum of 100 per cent. Of the red spring varieties, Webster (C.I.No.3780) and Warden were the most resistant. Of the durum wheats, Nodak (C.I.No.6519), Pentad (C.I.No.3322), and Spelmar (C.I.No.6236) were the only varieties apparently immune. In the hard red spring group, Preston (C.I.No.3081) was the only variety highly resistant. Vernal emmer also showed considerable resistance to leaf rust. Nearly all the varieties in the nursery were heavily infected with mildew (Erysiphe graminis).

Stripe-rust infection was moderate, some of the more susceptible wheat varieties showing only 10 per cent. Some of the varietal test plots of spring wheat showed about 40 per cent infection. This was especially true of White Federation. At Moscow, stripe-rust infection is much heavier. Some of the more susceptible wheats, namely, Jones Winter Fife (C.I.No.5608) and Jenkin (C.I.No.5177) and some of the barley varieties (C.I.Nos. 698, 700, and 1330) are showing a maximum infection of 80 per cent.

Stem rust of wheat and oats, and crown rust of oats had not yet made their appearance at Corvallis or Florence, Oreg., at the time the rust nurseries were inspected.

Messrs. J. Allen Clark and B. B. Bayles were visitors June 29 and 30.

OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens) (July 19)

The weather in June, especially the latter half, was very unfavorable for cereal crops in eastern Oregon. At Moro there was only 0.15 of an inch of precipitation in June and none has been recorded so far in July. Rather high temperatures from June 20 to 30 prematurely ripened wheat in many localities. Wheat yields will be much lower than farmers anticipated and the quality will be poor. Some farmers who have started threshing are reporting low yields of winter wheat, testing from 50 to 54 pounds a bushel.

The weather so far in July has been unseasonably cool, 86° being the highest temperature recorded. A minimum temperature of 40° was recorded on the night of the 10th.

All grains on the Station will be in the shock this week and threshing will begin early next week.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward) (July 8)

The weather of the first half of June was cool and cloudy. Small grains grew unusually well during the month. The growth of corn and grain sorghums was retarded. However, all crops made rapid growth during the past two weeks.

Winter wheat is maturing slowly in northern Utah and very little has turned.

Spring cereals throughout the State appear very promising, while winter wheats in many sections have poor stands.

The maximum temperature for June was 94° on the 28th; minimum, 36° on the 1st and 6th. The precipitation totaled 1.34 inches; the evaporation, 3.74 inches.

ARIZONA

Agricultural Experiment Station, Tucson (Cereal Agronomy, A. T. Bartel) (July 9)

The precipitation in June totaled but 0.16 of an inch. The maximum temperature was 110°, minimum, 48°.

Harvest of small grains is now about completed. Sorghum planting is well under way and will be completed in about 10 days. A great deal of Improved Dwarf hegari is being planted by farmers in southern Arizona. This strain has been selected by Mr. C. J. Wood, superintendent of the University of Arizona Experiment Station at Mesa, for the past 10 years and shows much improvement over the original variety.

Average yield of barley varieties grown in irrigated plots at Mesa, Ariz., 1932

Variety	C.I.No.	Yield(Bu.per acre)
Vaughn	1367	117.9
Trebi	936	112.8
Scarab	995	108.3
Sacramento	4108	99.1
Common Six Row	4625	97.9
India	4355-1	95.6
Mariout	3577	94.0
Afghanistan	4125	94.0
Multan	3401	83.4
Beardless	4627	76.7
Abyssinia	3909-1	57.7

917

LIB. SEC. PLANT

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

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Vol. 24 August 10, 1932 No. 12
Personnel (July 26-Aug.10) and Field Station (July 16-31) Issue

PERSONNEL ITEMS

The degree of Doctor of Philosophy was conferred upon Mr. S. C. Salmon by the University of Minnesota on July 23, 1932.

RECENT PUBLICATIONS

The Effect of Delayed Planting on the Control of Bunt by Copper-Carbonate Dust, by H. H. Flor. Phytopathology 22(7): 651-655. July, 1932. (Cooperation between the Division of Cereal Crops and Diseases and the Washington Agricultural Experiment Station.)

The Production of Bunt Chlamydospores in the Vegetative Tissue of the Wheat Plant, by H. H. Flor. Phytopathology 22(7): 661-664, figs. 1-2. July, 1932. (Cooperation between the Division of Cereal Crops and Diseases and the Washington Agricultural Experiment Station.)

Methods of Testing Inbred Lines of Maize in Crossbred Combinations, by Merle T. Jenkins and Arthur M. Brunson. Jour. Amer. Soc. Agron. 24(7): 523-530. July, 1932. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa and Kansas agricultural experiment stations.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg) (Aug. 2)

The precipitation in July totaled 7.22 inches, or 0.54 of an inch above normal. The drought of the latter part of June was broken on July 1. Intermittent rains on 16 days in the month provided sufficient moisture to insure a bumper corn crop.

The lowest temperature in July was 70° on the 23d, and the highest, 98° on the 14th. The maximum daily temperatures were 90° or above on all but four days.

Hand pollinating in the selfing nurseries and detasseling in the crossing plots were completed during the month. Many notes on selfed plants and ear rows also were completed. The corn is maturing rapidly.

ARKANSAS

Agricultural Experiment Station, Fayetteville (Rice Diseases, E. C. Tullis) (July 21)

Helminthosporium leaf spot is present throughout the rice-growing area of the Mississippi Valley. It appears that the disease will not become severe in Arkansas unless weather conditions become more favorable for its development.

Mr. H. M. Beachell reports that the disease is very abundant in late rice in the Texas area, and Dr. S. L. Smith writes that it is severe in the Lake Charles region of Louisiana but that it is just beginning to appear in the vicinity of Crowley.

MISSOURI

Agricultural Experiment Station, Columbia (Rice Agronomy, B. M. King) (July 27)

The crops at Elsberry are making satisfactory growth, although corn and soybeans are beginning to show considerable injury from heat and drought. Rice is making good progress and appears to be about normal for this season of the year. There is a fairly heavy infestation of grass and a few scattered weeds. The stand of rice may not be quite so good as it was last year, but on the whole the prospect for a crop is satisfactory.

OHIO

Agricultural Experiment Station, Wooster (Corn Investigations, G. H. Stringfield) [July 31]

Although the total rainfall from January 1 to July 31 is considerably below normal, corn is growing nicely and hand pollinations are being made with normal success. Pollination was begun earlier than usual, having been in progress since mid July at Columbus and since about July 20 at Wooster.

Cooperating entomologists report the heaviest and one of the earliest egg depositions in Ohio corn-borer history.

IOWA

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins) (July 29)

Corn pollinating was begun July 15. Because of high temperatures, especially at night, since corn started to tassel, it has come on much more rapidly than usual. At present pollinating is about two-thirds done and it is expected that all but a few scattering pedigrees will be finished by August 3 or 4. The pollinating season will be the shortest ever had here.

The weather in July has been very hot and dry. At present corn is badly in need of moisture. Many of the inbred lines have fired, although not so seriously as in the past two years. However, another week of hot, dry weather similar to that of the two past weeks will be disasterous to corn yields.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, E. R. Ausemus) (Aug. 3)

The maximum temperature in July was 101°; the minimum, 50°. The precipitation for the month totaled 3.73 inches.

Harvesting of all cereal crops has been completed and threshing is now being done. From July 12 to 20 high temperatures caused spring wheat to ripen prematurely.

Dr. J. J. Christensen and the writer visited the branch stations at Morris, Crookston, and Grand Rapids, Minn., from July 18 to 23. Wind and rain storms had caused serious lodging of small grains in a part of the area between University Farm and the station at Morris. At that station cereal crops were in good condition and did not show serious injury from drought. From Wheaton up through the Red River Valley many fields of spring wheat had been prematurely ripened by the hot winds, the heads being white and the grain being shriveled. There was some injury from drought and hot winds at the Crookston station.

Many fields of cereals were inspected and stem-rust infection was found to be light.

Corn throughout the section visited was in excellent condition.

Recent visitors at the Station were: Messrs. M. A. McCall, S. C. Salmon, J. A. Faris, A. G. Johnson, H. B. Humphrey, H. A. Rodenhiser, M. N. Pope, J. A. Clark, A. C. Dillman and H. H. Flor, Division of Cereal Crops and Diseases.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(July 31)

The maximum temperature for July was 103°; minimum, 69°. The precipitation was 2.79 inches. The rainy weather of June continued in the first week of July. The weather for the remainder of July was clear and hot.

Threshing of small grains was completed in July. The quality of all field grain was injured by the frequent rains in June. Wheat did not yield as well as expected but oats yielded much better. Weighing of the nursery grain, the quality of which is very good, is nearly complete. Corn was favored by the abundant rainfall in June and early July and probably will produce high yields for this section. Cotton was damaged materially by boll weevil for a time but now is setting a good crop.

The writer attended the short course and meeting of substation workers at College Station July 27 and 28.

United States Dry Land Field Station, Dalhart (E. R. Steen)(July 30)

Stand counts have been made of all grain sorghums on the Station, as well as of corn in the varietal plots. Heading notes are being taken and bagging is being done in the date-varietal blocks almost daily. The first heads appeared today in the White Wonder millet plot of the fallow date-varietal block, planted June 20. The May 15 blocks, as a whole, are more uniform and have larger heads than those noted at heading time last year.

A few smutted heads were bagged in the smut nursery last week.

The winter-wheat varieties which were threshed July 19 yielded from 21 to 25 bushels an acre. The test ran from 56 to 59-1/2; the test of 59-1/2 grown on a row plot is not considered a representative test of the varieties.

On July 21 a corn borer was discovered in the corn varietal plots. The corn is tasseling at present but it is estimated that 40 per cent of the plants will not tassel on account of the injury. A few silks were noted in the varieties today.

Since July 15 a precipitation totaling 0.93 of an inch has been recorded. On the afternoon of the 26th there was a local shower of 0.80 of an inch, accompanied by fine hail and a strong wind from the south. The hail did some damage to the grain sorghums but the rain offset the damage done.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Aug. 2)

The weather of last half of July was hotter and drier than that of the first part. The maximum temperature was 106° on the 31st; on ten days it registered 100° or more. The minimum temperature was 74° on the 27th. A shower totaling 0.32 of an inch fell on the 28th increasing the total precipitation for July to 0.34 of an inch.

Counting of stands is completed, and bagging seed heads and hoeing weeds are now in progress. Sorghums and broomcorns are heading in spite of the drought. The crops heading now probably will average short in stature and in forage yield.

A combination Dwarf kafir and Dwarf feterita project of 140 rows, planted June 17, is heading rapidly.

Rain is needed throughout western Oklahoma.

KANSAS

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)(Aug.5)

Heavy rains in late June delayed harvest in parts of the State and heavy weed growth developed, causing considerable difficulty in combining. Most of the crop was finally harvested, however, during the very dry, hot weather in July. Receipts of new wheat at the Kansas City terminal markets have been extremely light for this time of the year. This indicates that many farmers are holding most of their grain for better prices. For this reason no reliable estimate can be made on the winter-wheat yield in Kansas.

Threshing of small grains is nearly finished at Manhattan and plans are being made for fall sowings. July was extremely dry and hot and there was no rainfall until late in the month. Good rains have fallen in the last few days at Manhattan and preparation of nursery seed beds can proceed immediately.

Upland corn, in some localities, was injured by the hot dry

weather of July, but the crop in valleys and river bottoms was only slightly injured. Injury probably was more severe in the immediate vicinity of Manhattan than at most other points in the State owing to lack of rain. Local showers were reported elsewhere. Pollination is past except in very late fields, and the set of seed seems to be good. In the valleys near Manhattan corn is very tall and vigorous.

Sorghum varieties in experiment plots at Manhattan are making very satisfactory growth, and bagging of heads is now in progress. Milo and several hybrids having milo parentage were severely injured by chinch bugs but most other varieties escaped. The amount of kernel smut in inoculation experimental plots is unusually small this year, probably due to dry weather at sowing time.

Recent station visitors were Benjamin Koehler of the Illinois Agricultural Experiment Station, and Dr. J. H. Martin of the Division of Cereal Crops and Diseases.

Fort Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson) (Aug. 1)

The precipitation in July totaled 2.03 inches. The weather was mostly hot and dry and row crops suffered considerably. The drought was broken on July 29. Row crops sown somewhat late will benefit from the moisture.

Harvest and threshing of small grains have been completed. Bagging, roguing, and making crosses between different varieties of sorghums are now in progress.

Dr. J. H. Martin arrived today to conduct breeding experiments with grain sorghums.

COLORADO

United States Dry-Land Field Station, Akron (Wheat Improvement, J. J. Curtis)(Aug. 1)

Extremely dry weather prevailed in the early part of July, but 3.87 inches of rain in the last week brought the precipitation for July up to 4.17 inches.

Harvesting of wheat, oats, and barley was accomplished without interruption. Winter wheat was late in ripening and thin on the ground, so that weeds were very bad in all plots.

Early plots of corn on the poorer preparations were badly injured by the dry weather of early July. Late corn, however, has made rapid recovery and fair yields are probable.

Proso, sorghums, and beans have made rapid recovery since the late July rains and at present are in excellent condition.

The following were visitors in July: Messrs. K. S. Quisenberry and C. O. Johnston, Division of Cereal Crops and Diseases, Dr. D. W. Robertson, Colorado Agricultural Experiment Station, and Messrs. A. F. Swanson, D. A. Savage, and A. L. Hallstead, Fort Hays Branch Experiment Station.

NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, N. E. Jodon)(July 30)

The corn prospects at this station have been heightened by four good rains since the middle of the month. The total precipitation recorded so far in July is 4.48 inches, or 1.74 inches above normal. It is sprinkling this morning. Late corn was injured less by the hot, dry conditions that prevailed just before the middle of July than was early corn. Where corn emerged unevenly the recent favorable conditions have enabled the late plants to catch up in size. Corn on a small

piece of sod, broken out about five years ago to complete a series, was burned more severely than that on the older part of the series. The breeding block is being grown entirely under irrigation this year and is in excellent condition; however, rain and moist air yesterday and today are delaying pollination.

Sorghum varieties are in fine condition. They are making rapid growth and stands are good. Dwarf Freed is heading. Threshing has not yet been started. Harvest was very late, having just been completed in the nursery.

Agricultural Experiment Station, Lincoln (Wheat Improvement, C. A. Suneson) (Aug 1)

Recent good rains have made it possible to plow wheat land and also should insure a satisfactory corn crop in this section.

Nearly all the small-grain threshing has been completed. The yields calculated have borne out the earlier prediction that winter-killing and Hessian-fly injury would be the major yield determiners in winter-wheat yields here this year. For example, in the intermediate nursery Kawvale, which is resistant to Hessian fly, produced a yield of 63.5 bushels per acre, as compared with 24.4 bushels for Nebraska No. 60, which was badly infested with fly.

In the advanced nursery the yields were determined mainly by winter-killing and Hessian fly. Since these are in turn related to date of seeding, it is possible that relative yields in a season such as the one just completed may be determined very largely by date of seeding.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard)(Aug.1)

The weather in the last half of July was dry, and high temperatures caused grain to ripen rapidly. Harvest is now in full swing. Eight barley varieties in plots were cut on July 22. Fourteen of the earlier varieties of spring wheat and five of oats were harvested on July 26. The remaining wheat and oat plots were cut July 30. Harvest of the nursery material was started July 26 and will be completed this week.

Stem rust is not heavy this year and probably caused little or no injury to cereals.

Station visitors in the last half of July were Messrs. M. A. McCall, S. C. Salmon, K. S. Quisenberry, J. A. Clark, T. R. Stanton and R. H. Black, U. S. Department of Agriculture, Dr. L. R. Waldron and Mr. T. E. Stoa, North Dakota Agricultural Experiment Station, and Mr. H. R. Sumner, Northwest Crop Improvement Association.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)(Aug. 1)

Continuous drought since July 11 has caused rapid maturity of flax and other crops. The total precipitation for the last half of July was only 0.13 of an inch. Temperatures averaged somewhat above normal but no extremely high temperatures were recorded. The maximum temperature for the season to date was 99° on July 17. The minimum temperature for the last half of July was 48° on July 28.

Bison flax sown in the seed-treatment experiment on May 2 was harvested July 27. The early varieties in the flax varietal plots are nearly ready to harvest and all varieties probably will be ready to harvest in about a week. Flax in nursery rows is also ripening rapidly and most of it probably will be fully ripe by August 15.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (July 30)

The harvest of all crops except late-sown grains is finished. Threshing began yesterday with grass varieties and that of cereal grains will begin early next week.

Taking of smut counts in the hybrid spring-wheat nursery sown with bunt-inoculated seed was begun yesterday. The smut percentages range from zero in the Komar x Hussar hybrids and a few others to more than 50 per cent in susceptible varieties.

Visitors in July included Messrs. H. L. Walster, L. R. Waldron, T. E. Stoa, and E. G. Booth, North Dakota Agricultural Experiment Station; Mr. H. R. Sumner, Northwest Crop Improvement Association; Messrs. C. F. Marbut, M. A. McCall, S. C. Salmon, A. C. Dillman, T. R. Stanton, J. A. Clark, K. S. Quisenberry, H. A. Rodenhiser, Wallace Butler, and R. H. Black, U. S. Department of Agriculture.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(July 30)

Grasshoppers have caused considerable injury in this section, especially to oats. Many farmers are cutting their oats and barley before ripening to save them for feed. Wheat harvest will begin in a week or 10 days if the weather continues warm and dry.

By spreading poison bran bait in the nursery and varietal plots, large numbers of hoppers have been killed and injury to the cereal project has not yet been significant. It may be difficult to prevent injury to later-sown inheritance material, which will remain green for three weeks longer.

Although the precipitation in July has been one-tenth of an inch above normal, the effect of the moisture deficiency in May is evident in gardens now suffering for lack of moisture. Grain yields probably will not be above average. The mean temperature for July was 66.5°, about the same as for June.

Yields in the nursery should be fairly good, probably somewhat higher than those of 1931. Stem rust has been developing rapidly in the past two weeks and leaf rust has been very heavy. Notes on both leaf and stem rust are now being taken. All of the durum wheats available, numbering 365, were grown in a local bunt test and results indicate that Golden Ball, a poor quality durum, is the only one practically smut free. None of the desirable types showed much resistance, and only a few foreign introductions carried less than 10 or 20 per cent of infection.

Some 70 wheat heads were crossed about the middle of the month. Many of them were back crosses to Mindum, which is very desirable as to quality.

Recent visitors included Messrs. S. C. Salmon and J. A. Clark, Division of Cereal Crops and Diseases, Dr. L. R. Waldron and Mr. T. E. Stoa, North Dakota Agricultural Experiment Station, Mr. H. R. Sumner, Northwest Crop Improvement Association, and Mr. R. H. Black, Federal Grain Supervisor at Minneapolis. Mr. Wallace Butler, agent of the Division of Barberry Eradication, is today taking notes on the uniform rust nursery.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) [August 4]

Harvesting of plots and nursery was begun July 26 and has been progressing rapidly. Winter wheat, barley, and oats are ripening together. Winter wheat probably will yield from 20 to 35 bushels, while yields of all spring grains will again be light.

Heavy rains on July 17 and 18 totaled 1.31 inches. The weather since then has been ideal for harvesting. The maximum temperature for July was 95° on the 17th; minimum, 39° on the 4th. The precipitation was 2.12 inches. The Judith Basin has been hit by several serious hail storms during the last two weeks.

Visitors at the station have included the following from the Division of Cereal Crops and Diseases: Messrs. T. R. Stanton, M. A. McCall, J. A. Clark, H. A. Rodenhiser, and K. S. Quisenberry.

OREGON

Pendleton Field Station, Pendleton (Cereal Agronomy, J. F. Martin) (Aug. 2)

Combines have been running for more than a week in this vicinity and most of the farmers will finish their harvest within the next 10 days. Winter-wheat yields are about average on the better soil. Yields of spring wheat are low and the grain is badly shriveled because of hot, dry weather at a critical period of development.

A total of 0.36 of an inch of rain fell on July 4, 13, and 30. Precipitation during July is unusual in the Columbia Basin of Oregon. No extremely hot weather has been experienced this season and the nights have been cool.

Threshing on the Station will be completed about August 13. Yields have been computed for several of the winter-wheat plots and have averaged above 50 bushels an acre in some cases.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward)(Aug. 1)

Favorable growing weather prevailed in northern Utah in July. The dry-farm wheat nursery is just beginning to ripen, and all barley varieties and most of the oat varieties are ripe and ready for threshing. Bunt is abundant in the winter-wheat nursery as well as in nearly all commercial fields. As high as 90 per cent of bunt may be found in Kanred.

Spring wheat has an exceptionally fine appearance this year; most of the nursery rows stand erect, with the exception of some of the weaker-straw selections, which show from 5 to 90 per cent of lodging.

Corn and grain-sorghum varieties are making rapid growth. Freed, Dwarf Freed, Yellow kafir, and Tribune No. 12 have headed, while some of the milos are about to head.

Flax varieties look very promising this year. The precipitation for July totaled 0.84 of an inch. The maximum temperature was 94° on July 17 and the minimum, 36° on July 4.

CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, L. L. Davis)(Aug. 1)

In general, the rice on the Station does not look so well as did that of last year. There are some very fine plots, but the bulk of the crop does not have the vigor of that of last year. The nursery and varietal plots probably are better than were those of last year. Water grass is much worse and probably will reduce the yields in some of the 1/15th-acre plots. Late water grass is bad on some of the plots on the Armstrong land. The rice appears to be late in maturing. Last year Colusa (1600) was completely headed at this time, while this year it will not begin to head until about August 5. It looks as if fertilizers are going to give satisfactory results this year.

Rice in commercial fields is in about the same stage of development as that on the Station.

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Vol. 24 August 25, 1932 No. 13
Personnel (Aug.11-25) and Field Station (Aug.1-15) Issue

PERSONNEL ITEMS

The following members of the Division staff have been given approval to attend the meetings of the Sixth International Congress of Genetics at Ithaca, N. Y., from August 24 to 31: Messrs. C. W. Bower, J. C. Brinsmade, A. M. Brunson, A. A. Bryan, J. A. Clark, F. A. Coffman, A. C. Dillman, V. H. Florell, E. F. Gaines, J. R. Holbert, H. B. Humphrey, M. T. Jenkins, N. E. Jodon, E. S. McFadden, J. H. Parker, K. S. Quisenberry, L. F. Randolph, F. D. Richey, R. R. St. John, S. C. Salmon, W. J. Sando, G. F. Sprague, L. J. Stadler, T. R. Stanton, G. H. Stringfield, and A. F. Swanson.

Papers will be read by three members, as follows: F. A. Coffman, "Prevalence and Origin of Fatuoids in Fulghum Oats;" E. F. Gaines, "Resistance of Wheat to Physiologic Forms of Bunt;" and E. S. McFadden, "Association of Certain Types of Resistance to Stem Rust and Susceptibility to Heat Damage."

Mr. J. W. Jones left Washington on August 22 for Missouri, Arkansas, Louisiana, Texas, and California to conduct rice research and make selections of rice in cooperative nurseries.

RECENT PUBLICATIONS

Transferring Smut Immunity to Hard Red Spring Wheat. (Note.) R. W. Smith. Jour. Amer. Soc. Agron. 24(8): 663. August, 1932. (Cooperation between the Division of Cereal Crops and Diseases and the North Dakota Agricultural Experiment Station.)

WESTERN SECTION OF THE AMERICAN SOCIETY OF AGRONOMY

At the meeting of the western section of the American Society of Agronomy held at the University of Wyoming, Laramie, Wyo., in July, the following officers for 1933 were elected: D. E. Stephens, Superintendent of the Sherman County Branch Station, President; D. C. Tingey, Utah Agricultural College, Vice-President; I. A. Briggs, University of Arizona, Secretary. The 1933 meeting will be held at Tucson, Ariz.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor) (Aug. 12)

Rain is badly needed. So far it has been impossible to plow in preparation for fall seeding.

No benefit, so far as grain yield is concerned, resulted from dusting triplicate 1/85-acre plots of wheat with sulphur. Control of the leaf rust was poor.

The yields of oats, barley, and wheat grown alone show some agreement with the yields of these cereals grown as a mixture.

Variety	Yield when grown alone (Lbs. per acre)	Yield when grown in mixture (Per cent) Oats	Barley	Wheat
Oats 1/	1104	-	-	-
Barley 1/	1704	-	-	-
Wheat 1/	1088	-	-	-
Mixture 1/	1440	27.0	44.0	29.0
Oats 2/	1992	-	-	-
Barley 2/	1352	-	-	-
Wheat 2/	1184	-	-	-
Mixture 2/	1656	52.0	17.0	31.0

1/ Sown Sept. 25. 2/ Sown Oct. 22

Oat yields were poor. The Fulghum strains, especially 699-202, produced fair yields. In winters when winter injury is a factor in oat yields typical Fulghum does poorly, especially C. I. 708.

Wheat yields were almost 35 per cent below average. Wharten, the wheat-rye selection, Arlando, a selection from Mammoth Red, and Purplestraw, C. I. No. 1957, yielded comparatively high.

Yield of winter-oat varieties grown in duplicated 40th-acre plots at the Arlington Experiment Farm, 1931-1932

Variety	C.I.No.	Grain (Bu.per acre)	Culberson check (per cent)
Fulghum (699-202)	2498	42.2	125
Randolph	2275	44.8	119
Winter Turf	431	36.9	109
Fulghum	708	36.3	107
Lee	2042	42.9	100
Jackson	2276	32.5	96
Fulghum (699-2011)	2499	40.9	96
Winter Turf (Spören)	2506	34.6	92
Custis	2041	32.4	86
Hatchett	691	30.0	71
Winter Turf	541-4	26.0	69
Franklin	2892	20.6	49
Culberson	273	39.5 a/	--

a/Average of 8 plots

Yield of winter-wheat varieties grown in triplicated 40th-acre plots at the Arlington Experiment Farm, 1931-32

Variety	C.I. No.	Av.yield (Bu. per acre)	Per cent of Purple-straw ck.	Variety	C.I. No.	Av.yield (Bu.per acre)	Per cent of Purple-straw ck.
Wharten	10071	27.4	117	Fulcaster	1945	18.0	89
Arlando	10069	22.5	107	Leap	4823	19.8	87
Purplestraw	1957	21.5	106	Fultz	1923	16.8	83
Leap(Md.sel.)	--	23.3	103	V.P.I.131	10047	21.8	82
Sel. 1915 C	--	27.1	102	Shepherd	6163	16.4	78
Nittany	6882	21.1	100	Missouri Bluestem	1912	15.1	72
Mammoth Red	2008	19.9	100	Poole	1979	16.2	71
Dixie	10070	21.9	97	Genessee Giant	1744	13.9	70
Sel. 56-72	--	25.4	95	Dietz	1981	14.4	63
Gasta	11398	25.0	93	Fulcaster	6162	15.2	63
Red Wonder	5780	19.9	90				

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)(Aug. 17)

Temperatures of 90 degrees or above were recorded on 23 days in July. The maximum was 98°, the minimum 72°. The total precipitation was 3.59 inches. At no time during the month was there any fear of salt water contaminating irrigation streams. This was on account of the heavy rainfall in June.

Work on the Station has progressed nicely. Frequent rains have interfered somewhat with the cultivation of nonirrigated crops and with the control of boll weevil on cotton.

Leaf spot was noted in nearly all fields by the end of July. On the whole, it does not appear so severe as in the past two seasons. Some fields are heavily infested while in others the infestation is light.

The general vigor of the rice plants seems greater than it has for several years. However, there are many poor fields, the condition of which can not be accounted for.

TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer) (Aug. 17)

Hand pollinating of the early corn strains was started on July 10 and has continued until this week. A few late strains in the crossing material are still open but will have to be abandoned unless the rains let up. Extended dry weather with excessively high temperatures injured a few of the inbred lines, particularly those susceptible to firing. Since August 6 it has rained every day. The precipitation for the month probably will be above normal.

The corn crop in eastern Tennessee is in good condition, but elsewhere in the State it is only 75 per cent of the normal and probably will not make much recovery.

IOWA

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins, A. A. Bryan) (Aug. 16)

The weather of the first two weeks in August varied from moderate to rather cool. There were frequent rains in the second week. The rainfall was very heavy in some parts of the State.

Artificial corn pollination was practically completed by August 6, an unusually early date. Corn developed very rapidly and the pollinating season was relatively short. Although corn suffered somewhat from heat and drought the latter part of July pollen shedding and silking were good and satisfactory results are anticipated.

In July several fields of hybrid seed corn were inspected for approval by the Agricultural Experiment Association. Detasseling in most fields appeared to have been well done. There is a steadily increasing acreage devoted to the production of hybrid seed.

The prospects for corn are generally very good throughout the State, although yields probably were reduced somewhat by heat and drought at the critical stage.

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson) (Aug. 1)

The Corn Belt Section of the American Society of Agronomy and the American Society of Plant Physiologists held their summer meetings jointly at the University of Wisconsin, Madison, Wis., July 11, 12 and 13. A representative group of agronomists, geneticists, plant physiologists, pathologists and biochemists attended the meeting from 15 states, the United States Department of Agriculture, Hawaii, and Canada.

Barley scab has been very prevalent in central and southern Iowa and in sections of northern Illinois. Over 60 per cent of the threshed samples collected in this area by the Bureau of Agricultural Economics have graded sample grade owing to Gibberella. The damage is not so severe as in 1928, but sufficient scab is present to cause vomiting and feeding disturbances in hogs.

Visitors in July included Messrs. M. A. McCall, M. N. Pope, J. A. Faris, and S. C. Salmon, Division of Cereal Crops and Diseases.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (Aug. 15)

The maximum temperature for the first half of August was 104°, minimum, 62°. The precipitation was only 0.25 of an inch. Only 0.35 of an inch of rain has fallen since July 6.

No further seedbed preparation has been possible because of dry soil. Seedbeds for nursery and varietal tests of wheat are plowed but have not been worked down. Plowing throughout the county has been much delayed. Corn is mature and picking will start soon. Cotton has started to open, although none has been picked to date.

Yields of winter-wheat varieties grown in four 55th-acre field plots at Substation No. 6, Denton, Tex., 1932

Variety	C. I. No.	Texas Station No.	Average	Test weight (Lbs.per bu.)
Prelude x Kanred	8886	15833	34.9	55.8
Mediterranean	--	5933-34	32.3	55.8
Do.	--	5933-38	32.0	55.0
Tenmarq	6936	12578	32.0	55.8
Kawvale	8180	12577	31.4	55.8
Mediterranean	--	5933-20	31.0	56.0
Denton	8265	9236	30.6a/	56.1
Mediterranean	--	5933-23	30.0	57.0
Sutton	10053	15832	29.7	55.6
Kanred	5146	11763	29.3	54.1
Mediterranean	10086	3015-81	29.2	56.9
Do.	--	5933-36	29.0	54.6
White Mediterranean	10023	15834	27.9	52.0
Mediterranean	--	5933-32	27.8	54.5
Fulcaster	6471	7082	25.9	54.5
Mediterranean	--	3015-72	24.7	55.0
Blackhull	6251	7172	21.9	54.4
Kharkof	1442	16830	21.7	51.3
Nebraska No. 60	6250	15835	21.0	53.3
Harvest Queen	6199	15837	19.0	54.5
Nebraska No. 28	5147	15836	15.6b/	52.5

a/ Average of 10 check plots. b/ Nebraska No. 28 injured 20 per cent by freeze on March 13, when minimum temperature was 15°.

Yields of oat varieties grown in four 55th-acre field plots at Substation No. 6, Denton, Tex., 1932

Variety	C.I. No.	Texas Station No.	Freeze Damagea/ (P.ct.)	Average	Test weight (Lbs.per bu.)
(Fall sown)					
Tex.Red Rustproof	--	1415-12	6	83.6	29.8
Do.	--	1401-24	9	81.4	26.8
Do.	--	6217-43	8	80.6	25.3
Fulghum(699-202)	2498	15827	3	80.6	33.0
Tex.Red Rustproof	--	2805-39	8	80.2	26.5
Do.	--	2805-43	8	80.0	26.1
Ferguson 922	2150	9400	7	78.6	25.6
Tex.Red Rustproof	--	2805-36	8	77.3	24.8
Nortex	2382	9235	11	73.8	24.8
Tex.Red Rustproof	2503	1118-69	11	73.6	26.3
Frazier	2381	9234	45	36.2	28.5
(Spring sown)					
Tex.Red Rustproof	--	1401-24	-	72.1	22.0
Ferguson 922	2150	9400	-	72.0	21.0
Tex.Red Rustproof	--	2805-39	-	71.9	21.5
Do.	--	1415-12	-	70.4	21.8
Do.	--	1118-69	-	70.2	22.7
Frazier	2381	9234	-	69.5	25.8
Tex.Red Rustproof	--	2805-36	-	68.2	19.5
Do.	--	2805-43	-	66.8	20.5
Do.	--	6217-43	-	66.0	19.5
Nortex	2382	9235	-	62.4	21.5
Fulghum(699-202)	2498	15827	-	53.8	24.3

a/ Freeze damage occurred on March 13, when minimum temperature was 15°. Frazier oats were in the boot at the time, while others were very succulent.

Yields of barley varieties grown in 55th-acre field plots at Substation No. 6, Denton, Tex., 1932
(Sown October 19)

Variety	C.I. No.	Texas Station No.	Freeze Damage[a] (P.ct.)	Average	Test weight (Lbs.per bu.)
Tennessee Winter	3545	15826	14.0	34.2	31.0
Do.	--	15825	16.5	31.3	35.0
Wisconsin Winter	2159	15839	10.3	29.5	35.5
Finley(Local strain)	5901	12576	40.5	21.2	29.1
Tennessee Winter	257	15841	98.0	0.0	--
Vaughn	1367	15830	99.0	0.0	--
Atlas	4118	15840	99.0	0.0	--
Stavropol	2103	15828	99.0	0.0	--
Club Mariout	261	15842	99.0	0.0	--
Coast	690	15829	90.0	0.0	--

[a] All spring-type varieties starting to head at time of hard freeze March 13, when minimum temperature was 15°.

United States Dry-Land Field Station, Dalhart (E. R. Steen)(Aug. 15)

Almost all the sorghum varieties in the May 15 planting have headed. Some of the earlier varieties are coloring as they mature. The varieties that headed latest are showing the effects of the dry weather. In mid-day the leaves roll. In the earliest plots the leaves near the ground are beginning to burn. Dwarf hegari planted May 15 headed five days earlier than Standard feterita planted the same day. Standard feterita planted June 1 headed one day earlier than Dwarf hegari, while Standard feterita planted June 20 headed August 4. Dwarf hegari planted the same day has not yet headed.

New heads are appearing each morning in the sorghum nursery and seed heads are being bagged daily.

Milo disease developed in the sorghum milo-disease nursery last week.

Better results are being secured in the smut nursery than expected from the poor stand.

The precipitation for the first half of August totaled 0.82 of an inch.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Aug. 15)

The weather of the first half of August was like that of July, - hot and dry. Local showers broke the intense heat but a general rain is needed throughout western Oklahoma.

In spite of the drought sorghums and broomcorns are heading, but the prospects for good yields are lessening. Bagging of seed heads is the principal work being done this month.

The maximum temperature was 108° on August 1, and the minimum, 63° on the 4th. The precipitation totaled 0.56 of an inch and fell in three measurable showers.

KANSAS

Fort Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)(Aug. 1)

Yields of winter-wheat varieties grown in 50th-acre plots, two on cropped land and two on fallow, at the Fort Hays Branch Experiment Station, Hays, Kans., 1932

Variety	State No.	C.I.No.	Cropped land Yield (Bu.per acre)	Fallowed land Yield (Bu.per acre)	Av.in Bu. (both treatments)
Tenmarq	Kans. No. 514	6936	35.4	42.1	38.8
Tenmarq sel.	Kans. No. 2670	10089	34.6	42.1	38.4
Blackhull	---	6251	32.5	43.3	37.9
Early Blackhull	---	8856	33.3	41.2	37.3
Prelude x Kanred	---	8886	32.5	42.1	37.3
Cheyenne	---	8885	33.3	41.2	37.3
Kharkof(Hays No. 2)	---	6686	31.7	40.4	36.1
Oro	---	8220	31.7	41.2	36.5
Nebraska No. 60	---	6250	32.1	40.0	36.1
Kanred	---	5146	31.7	39.2	35.5
Kharkof	---	1442	31.7	38.3	35.0
Turkey	---	1558	30.8	38.7	34.8
Minturki	---	6155	30.0	37.1	33.6
Kawvale	---	8180	28.7	38.3	33.5
Cooperatorka	---	8861	29.6	35.0	32.3
P-1066-1 x Burbank	---	10087	29.6	33.7	31.7
Marquis x Kanred	Hays Cereal No.312	--	30.0	33.3	31.7
Kanred x Hard Fed.	Kans. No. 2671	11373	28.7	34.2	31.5
Marquis x Kanred	Hays Cereal No.318	11374	27.1	34.6	30.9
Nebraska No. 28	---	5147	26.2	30.4	28.3

COLORADO

United States Dry-Land Field Station, Akron (Wheat Improvement, J. J. Curtis)(Aug. 17)

The weather in the first half of August has been favorable for all work, and practically all the fall threshing has been completed. Duckfoot cultivation of fallow, bagging sorghums, and harvesting the nursery have also been done.

Crops are fair to good. Yields of oats, spring wheat, and barley in the varietal tests are shown in the following tables. Row crops are doing very well, although rain is needed. Proso is doing nicely.

Temperatures ranged from 52 to 98°; there was no rain during the first 15 days of August.

Station visitors in August were Messrs. G. E. Morton, H. B. Osland, and J. O. Toliver, Colorado Agricultural College, and Messrs. C. E. Leighty, J. M. Stephens, and K. S. Quisenberry, U. S. Department of Agriculture.

Yields of spring-wheat varieties grown on duplicated plots on fallow at the U. S. Dry-Land Field Station, Akron, Colo., 1932

Variety	C.I. No.	Av.yield (Bu.per acre)	Variety	C.I. No.	Av. yield (Bu.per acre)
Komar	8004	34.3	Quality	6607	29.5
Kota x Marquis 1656.85	8385	32.4	Hard Federation	4733	27.9
Kota x Marquis 1656.48	10014	30.8	Akrona	6881	26.4
Ceres	6900	30.6	Prelude	4323	23.5
Converse	4141	29.7			

Yields of oat varieties grown on duplicated plots, 2 on fallow and 2 on cornland, at the U. S. Dry-Land Field Station, Akron, Colo., 1932

Variety	C.I. No.	Av. yield (Bu.per acre)	Variety	C.I. No.	Av.yield (Bu.per acre)
Richland	787	28.5	Burt (5211-22)	2491	23.1
Franklin	2892	27.7	Kanota	839	22.8
Columbia	2820	25.9	Brunker	2054	22.2
Kherson	459	24.6	Early Red Texas	2823	19.3
Fulghum	708	23.4	Swedish Select	134	16.5
Edkin	2330	23.2	Colorado 37	619	11.9

Yields of barley varieties grown on duplicated plots, 2 on fallow and 2 on cornland, at the U. S. Dry-Land Field Station, Akron, Colo., 1932

Variety	C.I. No.	Av. yield (Bu.per acre)	Variety	C.I. No.	Av. yield (Bu.per acre)
Blackhull sel.1180		16.0	Horn	926	9.5
Club Mariout	261	12.4	Blackhull	878	9.1
Blackhull sel. 1178	5679	12.2	Pryor	2359	9.0
Vance (Smyrna)	4585	12.2	Pearl	5678	8.6
Flynn	1311	12.1	Trebi	936	8.2
Arequipa	1256	11.8	Moister	2799	8.1
Coast	690	11.4	Faust	4579	7.5
Malt	5677	10.0	Himalaya	620	7.4
Vaughn	1367	9.9			

SOUTH DAKOTA

United States Field Station, Redfield (Wheat Improvement, E. S. McFadden) (Aug. 17)

Threshing of field plots and nursery has been delayed on account of heavy rains on August 1, 2, 11, and 12. It is hoped to finish threshing the field plots tomorrow, and the main part of the nursery the next day. Yields of all small grains are above normal. Barley and early oats are of very good quality, but late oats and wheat were somewhat injured by the hot dry weather during the filling period.

This section has sufficient moisture at present to insure a corn-ear crop. However, early corn failed to set much grain as a result of burning of the tassels. As fast as the silks appear on the late corn they are eaten by grasshoppers.

A great many grasshoppers have migrated from this section. The air was so full of them one day that it was difficult to see the sun. Those that remain are rapidly being reduced in numbers by their natural enemies, particularly the toads, that have appeared in great numbers since the recent rains.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard) (Aug. 16)

Threshing of wheat, oats, and barley varieties in plots was completed August 13. Acre yields have not yet been computed. However, scale weights indicate that yields will be higher than usual. Yields of durum wheat on fallow in the Station rotation plots were second only to those of 1915.

Supreme, Marquillo, Hope, and H-44 were the only varieties that showed test weights of less than 60 pounds a bushel. Test weights of 63 pounds a bushel were recorded for Reward and Mindum.

Threshing of the nursery material will start August 17.

The weather in August has been very dry. Only 0.55 of an inch of rain has fallen since July 4.

Messrs. H. B. Humphrey and J. A. Clark spent August 4 to 10 at the Station making a genetic study of the rust inheritance of three wheat crosses. Rust notes were taken on about 22,000 individual plants.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (Aug. 18)

Threshing of the cereal nursery was completed early last week. Varietal plots of winter wheat, rye, oats, and barley were threshed before a rainy period that made it necessary to suspend threshing operations until today.

Yields have not yet been computed and will be reported later. Fairly good yields of most crops were obtained, especially in the winter-wheat nursery and barley plots. Intense heat and hot winds in July probably caused a reduction in yield and weight per bushel, especially of the late-maturing varieties.

Altogether over an inch of rain fell in several showers the past week. This and a like amount on July 31 will benefit corn and other late forage crops.

Messrs. C. E. Leighty and J. A. Clark, U. S. Department of Agriculture, and Supt. J. M. Stephens, of the Mandan station, visited the Substation in August.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 24 September 10, 1932 No. 14
Personnel (Aug.25-Sept.10) and Field Station (Aug.16-31) Issue

PERSONNEL ITEMS

Mr. C. E. Chambliss left Washington on August 28 for Delaware, Pennsylvania, New Jersey, New York, Massachusetts, New Hampshire, and Maine. He will collect wild rice seed, examine herbariums, and confer with seedsmen and experiment station officials regarding rice.

Dr. H. B. Humphrey spent August 22 at Morrisville, N. Y., in reading cooperative uniform rust nurseries of spring wheat and spring oats.

Mr. C. H. Kyle left Washington on August 29 for Georgia and Tennessee where he will obtain field data from and harvest experimental corn.

Mr. F. D. Richey left Washington on September 4 for Ohio, Indiana, Illinois, Iowa, Missouri, and Kansas in the interests of cooperative corn investigations.

Mr. J. W. Taylor, who was on furlough at Bellows Falls, Vt., joined Mr. Chambliss on August 28 on a trip through the lake and pond regions of Maine and New Hampshire to collect wild rice.

VISITORS

Prof. M. N. Kamat, assistant professor of plant pathology, College of Agriculture, Poona, Bombay, India, spent the week beginning August 22 at the Arlington Experiment Farm studying the methods used in virus-disease investigations. Prof. Kamat spent the past year with Dr. E. C. Stakman at the University of Minnesota.

MANUSCRIPTS SUBMITTED

36. An Undescribed Loose Smut of Barley, by V. F. Tapke, Sept. 6, Phytopathology (Note.)

EXECUTIVE ORDERS

CONTINUING TEMPORARILY THE PRESENT STANDARDIZED GOVERNMENT TRAVEL REGULATIONS, SUBJECT TO CERTAIN MODIFICATIONS.

Part II, sections 207 and 208, of the act entitled "An Act making appropriations for the Legislative Branch of the Government for the fiscal year ending June 30, 1933, and for other purposes," approved June 30, 1932, amends the Subsistence Expense Act of 1926 (44 Stat. 688, 689) by amending sections 3 and 7 thereof, and repealing sections 4, 5, and 6 thereof, effective July 1, 1932.

The Standardized Government Travel Regulations, as amended effective July 1, 1931, approved by the President April 21, 1931, shall continue in effect from and including July 1, 1932, until such time as amended standardized regulations are approved, subject to the following conditions, viz:

(1) All provisions relating to reimbursement of actual expenses for subsistence are revoked.
(2) Per diem in lieu of actual expenses for subsistence may be allowed not to exceed the rate of $5 within the limits of continental United States, and not to exceed an average of $6 beyond the limits of continental United States.
(3) Reimbursable transportation charges will not include gratuitous fees or tips of any kind.

The rates of the per diem in lieu of actual expenses for subsistence authorized by the amendatory law and which are set forth above represent the maximum allowable, not the minimum. It is the responsibility of the heads of the departments and establishments to see that travel orders authorize only such per diem rates as are justified by the nature of the travel.

HERBERT HOOVER

REGULATIONS GOVERNING SICK LEAVE OR ABSENCE AUTHORIZED BY LAW

The regulations of the several executive departments and independent establishments pertaining to the so-called sick leave of absence now authorized by law shall continue in effect until such time as uniform regulations may be prescribed under the authority contained in Part II, section 215, of the act entitled "AN ACT making appropriations for the Legislative Branch of the Government for the fiscal year ending June 30, 1933, and for other purposes," approved June 30, 1932.

HERBERT HOOVER

THE WHITE HOUSE
June 30, 1932

IMPORTANT NOTICE

Because of drastic reductions in the allotment of blank paper for the use of the various Divisions of the Bureau it has become necessary for all employees in the field and in Washington to practice rigid economy in the use of paper of all sorts. The situation is so serious that it will be necessary to ask field station personnel to purchase paper locally, under letter of authorization. Information relative to this will be supplied later.

The cut for the present fiscal year represents 61 per cent of the amount spent last year. This means a real crippling of correspondence, records, collection of data, etc., unless every effort is made to limit all waste or unnecessary use of paper. The following is quoted from a letter from the Chief of the Bureau:

"Correspondence should be handled in such a way that rewriting will be unnecessary. Stenographers and typists should be cautioned against errors necessitating rewrites. In cases where it is absolutely imperative to rewrite a letter or memorandum, the originals should be saved and used as scratch paper. Whenever possible letters should be held to one page length.

"Writers are cautioned to use increased care in preparing manuscripts so as to obviate the necessity of re-typing material.

"If members of your staff have suggestions for the saving of blank paper, will you pass them on to the Bureau Office of Publications so that the Bureau as a whole may benefit by them."

M. A. McCall
Principal Agronomist in Charge.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, E. R. Ausemus)(Aug.2) The maximum temperature in August was 93°, minimum, 51°. The precipitation was 3.87 inches, 0.75 of an inch above normal.

Work at the Station has progressed nicely. Threshing of both spring and winter grains has been completed. Heavy rains the latter half of the month have put the ground in good condition for fall plowing.

Winter wheat was sown at University Farm on August 31 and September 31.

TEXAS

United States Dry-Land Field Station, Dalhart (E. R. Steen)(Aug.31) Bagging seed heads in the date-varietal blocks and of most strains in the sorghum and milo-disease nurseries has been completed. Counts show that 35 per cent of the plants in the Sunrise kafir plots of the May 16 date of planting have lodged. Other varieties have lodged less. Today a strong wind increased lodging somewhat. Because of stunted and dried plants the more susceptible varieties and selections in the milo-disease nursery are easily seen.

The weather of the last half of August has been dry. Of the recorded precipitation of 0.86 of an inch, only a shower of 0.69 of an inch on the 29th was of any benefit.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Aug.31) A steady 3-inch rain on August 16 changed the crop outlook from bad to good, and especially helped the chances for the later seedings and varieties of sorghum and broomcorn.

The first date-varietal plots of broomcorn have been harvested. The sorghums in the first date-varietal plots are ripening rapidly. Bagging, or selfing, of seed heads has been the principal work in August.

Maximum temperature for the last half of August, 95° on the 25th and 26th; minimum, 59° on the 20th. Precipitation was 4.16 inches, or a total of 4.72 inches for the month.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens)(Aug.31) Present indications are that moisture conditions in this vicinity will be favorable for bringing up winter wheat this fall. The Panhandle region of Oklahoma has been suffering from drought, and lack of soil moisture there makes prospects poor for the coming wheat season. Preparation of seed for fall sowing is now in progress.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard) (Sept.1) The weather in August was dry. Less than an inch of rain has fallen since July 4, 0.30 of an inch being the heaviest rainfall since that date. Maximum temperature, 95° on Aug. 15 and 23; minimum, 41° on the 17th.

Threshing of wheat, oats, and barley in plots was completed August 13. Nursery threshing was completed September 1. Yields for varieties in plots are as follows:

Average yield of spring-wheat varieties grown in triplicated 50th-acre plots at Mandan, N. Dak., 1932

Variety	C.I.No.	Yield (Bu.per acre)	Variety	C.I.No.	Yield (Bu.per ac
Common:			Durum:		
Reliance	7370	25.3	Mindum	5296	23.2
Reliance sel.22	8384	23.1	Nodak	6519	23.2
D.C.Minn.No.2303	10003	22.9	Kubanka	1440	23.0
Ceres	6900	22.8	Monad	3320	22.3
Marquillo	6887	22.2	Mondak	7287	20.4
Marquis x Kota 1656.85	8385	21.9	Kubanka sel.132	8383	19.4
Marquis x Kota 1656.48	10014	21.6			
Komar	8004	21.2			
Reward	8182	20.6			
Supreme	8026	20.3			
D.C.Minn.No.2305	10005	20.0			
Marquis	3641	18.7			
H-44	8177	18.5			
Hope	8178	15.0			

Average yield of oat varieties grown in triplicated 50th-acre plots at Mandan, N. Dak., 1932

Variety	C.I.No.	Yield (Bu.per acre)	Variety	C.I.No.	Yield (Bu.per ac
Minrus	2144	64.4	Victory	560	58.1
Anthony	2143	64.1	Golden Rain	493	57.0
Green Russian sel.	2343	62.0	Rainbow	2345	56.5
Markton	2053	60.7	Gopher	2027	56.3
Green Russian sel.	2344	59.7	Edkin	2330	54.2
Iogold	2329	59.6	Sixty-Day	165	48.5

Average yield of barley varieties grown in triplicated 50th-acre plots at Mandan, N. Dak., 1932

Variety	C.I.No.	Yield (Bu.per acre)	Variety	C.I.No.	Yield (Bu.per ac
Glabron	4577	44.8	Featherston	1120	37.8
Trebi	936	43.8	Hannchen	531	35.9
Horn	926	43.7	New Composite Cross[a]	5461	26.2
Odessa	182	42.7			
Alpha	959	39.8	Vaughn[b]	1367	26.0

[a] Average of 2 plots. [b] About a 50 per cent stand.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(Aug.31) Threshing of cereals in both plots and nursery is completed. Seed of practically all varieties has been cleaned and test weights have been determined. Grain for fall sowing in field plots and nursery has been prepared. Seeding will be done in a week or two after the hazard of fall injury from grasshoppers is reduced somewhat by poisoning and fall frosts.

Yields obtained at the Substation in the uniform spring-wheat and winter-wheat nurseries and in the replicated wheat plots are shown in the following tables.

Yields of cereal crops in this vicinity vary somewhat as a result of local thunder showers and differences in soil treatment, but in general are better than average. Threshing is well advanced.

Yields of spring-wheat varieties grown in quadruplicated 56th-acre plots on cornland at the Dickinson Substation, 1932[a]

Variety	C.I.No.	Yield (Bu.per acre)	Variety	C.I.No.	Yield (Bu.per acre)
Hard red spring:					
Ceres	6900	24.1	Red Fife	3329	15.6
Supreme	8026	23.0	Hope	8178	12.7
D.C.Minn.No.2303	10003	23.0	Durum:		
Komar 1656.84	8004	21.7	Kubanka	1440	21.5
Reliance	7370	21.1	Akrona	6881	19.9
Reward	8182	20.7	Monad	3320	19.7
Marquis	3641	19.5	Mindum	5296	19.6
Power	3697	18.9	K75-3-15	11476	19.3
Preston	3081	18.7	K-132	8383	18.6
Haynes Bluestem	2874	17.8	Pentad	3322	18.6
Marquillo	6887	17.8			

[a] The test weights varied from 54 to 60.5 lbs. per bushel.

Yields of spring-wheat varieties grown in triplicated 3-row plots in the uniform spring-wheat nursery at the Dickinson Substation, 1932[a]

Variety	C.I.No.	Yield (Bu.per acre)	Variety	C.I.No.	Yield (Bu.per acre)
Kota x Webster	11463	24.8	Double cross	10021	15.9
Marquis x H.Fed.	11464	24.3	Hope x Florence	11470	15.0
Ceres	6900	22.0	Kota x Webster	11462	14.3
Double cross	11487	19.1	Marquis x Emmer-Webster	11430	14.3
Marquis x H.Fed.	11467	19.1	H-42 x Marquis	11473	13.4
H-44	8177	18.8	Double cross	10020	12.7
Double cross	10002	18.7	Pentad x Marquis	11475	12.9
Marquis x Kota	11468	18.3	Reliance x Hope	11435	12.6
Marquis	3641	17.7	H-42 x Marquis	11472	12.3
Hope x Ceres	11428	16.9	Reliance x Hope	11431	11.5
Marquis x Kota	11469	16.8	Hope x Ceres	11432	10.7
H-44 x Marquis	11474	16.7	Reliance x Hope	11434	10.3
Hope x 1656.97	11471	16.7			

[a] Test weights have not yet been obtained.

Yields of winter-wheat varieties grown in duplicated 40th-acre plots on cornland at the Dickinson Substation, 1932[a]

Variety	C.I.No.	Yield (Bu.per acre)	Variety	C.I.No.	Yield (Bu.per acre)
Turkey	1571	23.8	Karmont	6700	21.1
Nebraska No.60	6250	22.9	Beloglina	1543	21.0
Minturki x Bel.-Buffum	8033	22.5	Minturki	6155	20.3
Kanfed	5146	22.3	Kharkof	1583	20.1
Minhardi x Minturki	8034	21.8	Kanred x Buffum	8030	17.8

[a] Test weights varied from 57 to 60 lbs. per bushel.

Yields of wheat varieties grown in the uniform winter-hardiness nursery in triplicated 3-row plots in Sudan grass stubble at the Dickinson Substation 1932[a/]

Variety	C.I.No.	Yield (Bu.per acre)	Variety	C.I.No.	Yield (Bu.per acre
Cheyenne	8885	32.8	Turkey x Minessa	8887	23.3
Kharkof	1442	30.7	Minard x Minhardi	8888	22.9
Eureka x Minhardi	8036	30.3	Do.	8889	22.9
Minhardi x Minturki	8034	29.8	Blackhull	6251	22.8
Turkey	6152	28.8	Prelude x Kanred	8886	22.7
Beloglina sel.	8884	27.8	Minhardi x Minturki	8215	22.3
Tenmarq	6936	27.2	Minard x Minhardi	8218	22.2
Wisconsin No.21.25	10018	26.9	Fulcaster	6471	22.1
Minhardi	5149	26.2	Beloglina	1543	21.5
Oro	8320	25.3	Turkey sel.	10015	21.1
Nebraska No.60	6250	25.1	Kanred x Minhardi	8040	20.3
Kanred	5146	23.6	Marquis x Kanred	11374	20.1
Minturki	6155	23.6	Kanred x Minhardi	8042	19.5
Kawvale	8180	23.5	Turkey sel.	10016	19.3
Iowin	10017	23.3	Kanred x H. Fed.	11373	14.2 a/

a/ Test weights varied from 60 to 65 lbs. per bushel.
b/ Some destroyed by gophers.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(Aug. 31) Yields in the wheat varietal plots varied from 22.5 bushels per acre for Reward to 35.3 for Reliance and 36.7 for Mindum x Pentad, C. I. 8882, the highest-yielding durum. Yields averaged 8 to 10 bushels higher than in 1931.

Rains the last week in August have interrupted partly finished threshing operations in this section. However, weather was ideal during harvest and early threshing. Farmers report fairly good yields, varying from 15 to 30 bushels an acre.

Head selections and the classification of inheritance material in the nursery are nearly completed and threshing will commence soon.

The mean temperature for August was 66.9°, five degrees above normal. There was not a trace of precipitation in the first three weeks of August, and the subsoil in cropped land is extremely dry despite recent showers.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland)(Sept.1)Threshing of all field and nursery plots was completed August 27. This is somewhat earlier than harvest in other years and was made possible by the favorable weather the first two weeks in August.

Early sowings of winter wheat on the Station and in fields in this vicinity have been injured by grasshoppers.

Recent rains have put fallow land in very good condition for sowing winter wheat, the bulk of which is yet to be sown. The optimum date for seeding is about September 10.

The precipitation for the month totaled 1.75 inches, nearly all of which fell in the last two weeks. Maximum temperature, 96° on the 9th, minimum, 38° on the 29th, 30th, and 31st.

WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E.F.Gaines) (O.A.Vogel) (Aug.23) The demand for more efficient nursery equipment has led to the building of a 3-row planter and a rod-row thresher.

The 3-row planter (Fig.1) was built from parts of a Wright garden planter. Two additional outlets, each 120 degrees from the original, are drilled in the base of the seed box. The seed box is fastened to a wide hinge so as to be easily emptied into a removable pan. A disc-type shut-off placed between the bottom of the seed box and the hinge is kept in

closed position by a spring until opened with a lever on the handle. The extra space between the shut-off and the seed box is filled in with lead. The beams holding the two outside planter shoes are made of 3/4-inch pipe fittings and are spot-welded to prevent turning except at the points of attachment on each side of the front wheel. Each of the two outside beams is rendered flexible by a compression spring and a sliding bolt attached to the "Y" fittings. This helps to keep all the shoes in the soil when crossing diagonal ditches and reduced the side draft when one of the outside shoes strikes a rough or hard spot.

To change the machine from a 3-row to a 1-row planter a special stationary disc that closes two of the outlets can be inserted below the seeding plate. The two outside planters can be removed to decrease the weight.

The 3-row planter can be easily operated on well-prepared seed beds by two men, one pulling and one pushing. Wheat, oats, barley, and flax are all successfully sown with this drill. In nursery plots sown with this drill the center row is always equidistant from the two guard rows.

The cost of all necessary materials for the 3-row attachments was approximately $16.00. About $15.00 would be required for labor in constructing the attachments if a second 3-row planter were to be built. Further details will be furnished upon request. [This is the most satisfactory drill of the many that I have seen for seeding 3-row nursery plots.-B.B.B.]

The rod-row thresher is a combination of an overshot cylinder and a modified Clipper fanning mill with screens removed. Threshing and separating grain from straw and chaff are practically completed during the first operation. The recleaning is done in a separate unit while a second bundle is being threshed. The recleaner consists of a sheet-iron box with a screen bottom of 1/4-inch mesh. The screened material passes through a second air blast and usually is cleaned sufficiently for test weights to be taken. In a 7-1/2-hour trial, with a crew of four men, 626 rod rows of winter wheat were threshed, recleaned, weighed, sacked, and placed in drawers ready for storing. With spring wheat, 775 rod rows were threshed in 6 hours. This is an average of less than 30 seconds per plot. Test weights were also taken in these trials.

Further description would involve considerable detail but can be given upon request.

OREGON

Pendleton Field Station, Pendleton (Cereal Agronomy, J.F.Martin)(Aug.31) The weather in August was dry except for 0.04 of an inch of rain on August 10 and 11. It was unusually cool for this section but good harvesting conditions prevailed.

The following table shows yields of 18 winter-wheat varieties grown in quadruplicated 53rd-acre plots in 1932. The test weight varied from 56.5 to 62.5 lbs. per bushel. Federation was outstanding for yield. Three hybrid strains were next, and two of these grade No. 1 from the standpoint of test weight. The strain of Fortyfold x Hybrid 128 may replace some of the Hybrid 128 in this section because of less straw growth and probably superior yield. White Odessa x Hard Federation possesses some resistance to bunt, together with yielding ability and fairly high test weight. Fortyfold x Federation yields well but is light and very susceptible to smut.

Yields per bushel of winter-wheat varieties grown in quadruplicated 53rd-acre plots at the Pendleton Field Station, Pendleton, Oreg., 1932

Variety	C.I.No.	Yield (Bu.per acre)	Variety	C.I.No.	Yield (Bu.per acre)
Federation	4734	47.2	Albit	8275	36.9
Fortyfold x Hybrid 128(N.No.942)	--	43.7	Mosida	6688	36.6
Fortyfold x Fed.	8247	42.3	Pecavet sel.	--	36.4
White Odessa x H.Fed.	10065	41.8	Golden	10063	35.7
Jenkin	5177	41.3	Triplet	5408	35.7
Fortyfold sel.29	10062	39.3	Oro	8220	34.5
Hybrid 128	4512	38.4	Ridit	6703	33.2
Fortyfold sel.54	10064	38.3	Kharkof	1442	29.5
Sherman	4430	36.9	Fortyfold[a]	4156	19.9

a/ 30 per cent shattered before harvest

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward) (Sept. 1) Favorable growing conditions prevailed in August. The maximum temperature was 96°, and the mean 67°. A minimum temperature of 32° was recorded on the 29th, following a 4-day rain, but no apparent damage resulted. The precipitation in August totaled 1.47 inches.

All small grains are harvested. Most of the threshing is done with the exception of spring oats and wheat plots that have been retarded by the storm.

Yields in the winter-wheat nursery are poor, largely caused by winter-killing. Yields of spring wheat are good, but barley yields are unusually poor for such a favorable growing season. Several of the grain-sorghum varieties are in the hard-dough stage and some of the corn varieties are beginning to mature. However considerable frost-free weather will be necessary to permit most of the corn and grain sorghum varieties to mature as fully as last season.

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 24 September 25, 1932 No. 15
Personnel (Sept.11-25) and Field Station (Sept.1-15) Issue

PERSONNEL ITEMS

Dr. Charlotte Elliott left Washington on September 15 for Texas and Kansas in the interests of cooperative sorghum root-rot investigations.

Dr. A. G. Johnson left Washington on September 10 for Indiana, Illinois, Arkansas, Louisiana, Texas, and Kansas, to inspect rice and corn for diseases and to confer with field employees of the Division, experiment station officials, and others regarding cooperative cereal-disease investigations.

Dr. K. S. Quisenberry spent September 15 to 18 inspecting and taking notes on cooperative buckwheat experiments conducted at the Agricultural Experiment Station, Morgantown, W. Va.

VISITORS

M. Roger de Vilmorin, of the well-known firm of Vilmorin-Andrieux et Cie, Paris, visited the Division on September 6 and 7.

RECENT PUBLICATIONS

A New Form of Oat Stem Rust from a Barberry Area. Ralph U. Cotter. Phytopathology (Note) 22(9): 788-789. September, 1932. (Cooperative investigations between the Divisions of Barberry Eradication and Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

Factors Affecting the Development of the Aecial Stage of Puccinia graminis. Ralph U. Cotter. U. S. Dept. Agr. Tech. Bul. 314, 38 p., 5 pl. August, 1932. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins) (Sept.19) The absolute maximum temperature in August was 94°; absolute minimum, 70°. The total precipitation was 6.55 inches, which was so distributed as to be of great benefit for irrigation.

Farmers have completed harvesting and most of the threshing of early rice. The greater portion of Fortuna has been harvested. Indications are that the yields of early maturing rices will be somewhat lower than those of last year, and that the yields of late-maturing rices will be higher.

Leaf spot did not appear so abundant toward the latter part of the month as it did at the beginning. Other diseases, however, seem to be increasing as the season advances.

On August 2 to 4 the writer, together with R. H. Wyche, H. M. Beachell, W. A. Douglas, and A. L. Smith, traveled by automobile through rice sections of Texas, including the following localities: Beaumont, Devers, Houston, Richmond, Wharton, Pierce, El Campo, Bay City, and the Texas Substation at Angleton. Some excellent crops of rice were noted, especially at Richmond and Pierce. At the latter place a field of early rice on virgin soil was inspected. Apparently this was the only field of absolutely healthy rice seen on the entire trip. The next healthiest was on comparatively new land in the Brazos River bottoms, south of Richmond. The manager of the Richmond Canal Company reported 3,000 acres seeded to Rexoro in 1931, with an average yield of 20 barrels, and a sale of 30,000 barrels at $3.50 per barrel. He reports 4,500 acres of this variety on his canal this season.

From August 9 to 11 the writer attended the Farmers' Short Course at Louisiana State University, and discussed rice on the morning of the 10th. The interest in this subject was rather keen and great satisfaction was noted over the expansion of the activities of this Station.

Work on the Station progressed nicely during the month. Frequent rains interfered with boll weevil control in cotton, which will result in very poor yields. Rice plots seem to have been greatly benefited by the heavy and frequent rains. Dr. Smith and Mr. Ellis have devoted much time to the study of rice diseases.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(Sept.17) The maximum temperature for the first half of September was 96°; minimum, 57°. The precipitation totaled 1.79 inches and came at an opportune time, as it had been impossible to prepare seed beds for fall grain before. Preparation of seed beds is now well under way and in some cases there probably is sufficient moisture in the ground to cause germination.

Corn produced a good crop in spite of the dry weather. The harvest is completed.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Sept. 16) The weather of the first half of September was favorable for the ripening of early sorghums and the development of the later seedings and varieties.

Most of the plots in the first seeding (May 25) of the varietal experiment were headed on September 8. Broomcorn also has been harvested as it reached the right stage.

The sorghum experiments were shown to a number of visitors on the Annual Field Day, September 10.

Maximum temperature for the first half of September, 97° on the 15th; minimum, 56° on the same date; precipitation, 0.14 of an inch in three sprinkles.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens)(Sept. 16) The first seedings of winter wheat in the plot and nursery date-of-seeding experiments were made on September 15. The plot experiments include 2,4,6, and 8 peck rates seeded on five dates from September 15 to November 15. In the nursery, 10 varieties each are sown in triplicate 3-row plots on early, normal, and late dates.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard)(Sept. 16) On August 31, 216 rows of winter wheat were sown. The first emergence was on September 10. Germination has been very irregular, even though the seed was sown in shallow furrows on fallow ground. About two-fifths of the nursery has germinated to date and is making a fair growth. A rain undoubtedly will be needed for the rest of the nursery to germinate.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)(Sept. 17) The drought, which began early in July, continued throughout August and the first half of September. Only 1 inch of precipitation has been recorded during the past 10 weeks. The absence of extremely high temperatures doubtless accounts for the fact that drought injury to crops is only moderate. The temperature did not reach 100° at any time during the season, and was never over 95° in August or so far in September. Maximum temperature in the first half of September, 94° on the 8th, minimum, 35° on the 12th and 15th. Tender garden plants were touched with frost on September 12 and 15.

Flax ripened much earlier than usual on account of the summer drought. Plot threshing is nearly completed and nursery threshing is well under way. The season was favorable for early flax. The average yields from 36 rows of Bison sown on May 2, May 16, and June 3 were 16.8, 12.1, and 9.1 bushels per acre, respectively.

The flax field exhibits at the Sixth International Congress of Genetics at Ithaca, N. Y., were interesting. Rust infection was severe on susceptible varieties. There was no wilt in evidence, so that wilt-susceptible varieties made a better showing than wilt-resistant ones. Newland gave promise of producing a much higher yield than Bison. The flax diseases (unidentified) which usually affect Indian flax varieties at Mandan also were prevalent on all varieties and hybrids of Indian origin in the exhibits at Ithaca but were not found on varieties of American, European, or Argentine origin in the same exhibits.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (Sept.16) Harvesting of the cereal plots was completed with the harvesting of the corn varieties on September 13. Four 56th-acre plots of each of 15 varieties were cut and shocked for later husking and weighing to determine yields. The crop is better than average, although the stalks were short due to hot winds at a critical time.

Grasshoppers on the Substation have been thinned out by poisoning. Winter wheat and rye will be sown in a few days.

The corn crop in this vicinity is fairly good. It is excellent in sections favored with local rains in July.

Dickinson is celebrating its 50th anniversary with a Golden Jubilee today and tomorrow.

Among the many relics of pioneer days on display in local store windows is a medal given by the World's Columbian Exposition in 1893 to Fisher Brothers, of Dickinson, for the best sample of hard red spring wheat. The variety was Scotch Fife and was grown in 1892. It weighed 64-1/2 pounds a bushel, and yielded 31 bushels an acre.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(Sept.15) Nursery threshing has been in progress for the past week and should be completed in about three days. Yields in the nursery rarely exceeded those from the varietal plots. This is unusual but may be accounted for by the fact that plots were not sown as early as the nursery and thus escaped somewhat the drought and high temperatures of late May and early June.

Only 0.14 of an inch of precipitation has fallen in the first half of September. This and the severe deficiency of sub-soil moisture makes the soil very unsatisfactory for fall plowing, which is now being done in this section.

With the disappearance of green vegetation, grasshoppers have become comparatively scarce and prospects are that their eggs will be considerably less abundant than last year.

The corn crop though small in this section is favored by the absence of any killing frost so far. The minimum temperature has been 34°, on two dates.

NOTES

CEREAL COURIER MAILING LIST

Since the Cereal Courier mailing list has been reduced, many letters have been received expressing regret that it is no longer available outside the Division. Several correspondents requested that they be allowed access to copies sent to our personnel at their institutions. Because of this interest it is suggested that members of our staff give cooperators an opportunity to see the Cereal Courier before filing it. Directors in particular have asked for this privilege.

The article which appears in the Cereal Courier, Vol. 24, No. 14, September 10, 1932, describing the new 3-row nursery drill and the new nursery thresher, was prepared by Mr. O. A. Vogel.

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 24 October 10, 1932 No. 16
Personnel (Sept.25-Oct.10) and Field Station (Sept.16-30) Issue

PERSONNEL ITEMS

Mr. Chas. E. Chambliss left Washington on September 28 for South Carolina, Georgia, Florida, Alabama, Louisiana, and Texas. He will look over cooperative rice experiments and confer with seedsmen and millers regarding the utilization of rice, including Zizania

Prof. H. B. Hayes has been granted leave without pay to undertake temporary teaching duties at Cornell University. During his absence his work under the cereal project at University Farm, St. Paul, Minn., will be taken care of by Mr. E. R. Ausemus.

Mr. N. E. Jodon has been granted leave without pay from the North Platte (Nebr.) Substation from September 17, 1932, to June 30, 1933, in order to engage in graduate study at Cornell University.

Messrs. M. N. Pope and J. W. Taylor spent two days late in September in Virginia. At Manassas, barley, oats, and wheat were sown in a cooperative experiment and at Mattoax a cooperative barley nursery was sown. At Richmond a visit was made at the seed houses of T. W. Wood & Sons.

The territory south of Richmond was suffering severely from drought. Conditions were about as bad as during the drought of 1930.

Mr. R. B. Webb, Sherman County Branch Station, Moro, Oreg., has been granted leave without pay from October 12, 1932, to June 15, 1933. He will pursue graduate study at the Oregon State College of Agriculture.

VISITORS

Mr. M. Perez Catan, former agricultural attaché at the Argentine Embassy in Washington, now in charge of Economic Research, Faculty of Agronomy and Veterinary Science, University of Buenos Aires, was a visitor in the Division on October 8.

Dr. N. I. Vavilov, Director, Institute of Applied Botany, Leningrad, U. S. S. R., was a Division visitor during the week of October 3.

RECENT PUBLICATIONS

Some Factors Affecting the Reversal of Sex Expression in the Tassels of Maize. Frederick D. Richey and George F. Sprague. The American Naturalist 66: 433-443. September-October, 1932.

ADMINISTRATIVE NOTES

Each month a few field employees fail to wire pay roll approval on the last day of the month and many salary checks are delayed by this negligence on the part of one or two.

Form 17-a for furlough should be filled in and sent to Washington in advance whenever possible; otherwise it should be mailed immediately upon taking leave. Furlough taken too late in the month for application to reach Washington by mail should be reported in the monthly pay roll telegram.

H. S. Smith, Junior Administrative Assistant.

COMPTROLLER GENERAL OF THE UNITED STATES
Washington

A-44803 September 28, 1932

The Chairman,
Interstate Commerce Commission.

Sir:

Consideration has been given to your letter of September 21, 1932, as follows:

"One of the employees of the Interstate Commerce Commission was granted legislative furlough leave from July 25 to and including August 13, 1932. Under date of July 28, 1932, this employee was notified that he would be placed on administrative furlough from August 16 to December 31, 1932, and on August 15, 1932, he requested that the furlough leave which had been granted from July 25 to August 15, 1932, be charged to sick leave, presenting as evidence a certification from a physician stating the employee had been under his care for eye trouble and was incapacitated for duty during the period granted as furlough leave.

"May we be advised whether the Commission has the authority to grant the employee's request?"

Legislative furlough once granted pursuant to the provisions, and with in the limitations, of section 101 (b) of the Economy Act and entered upon by the employee, which places the employee in a nonpay status, may not be revoked or changed and the employee restored to a pay status unless and until there has been an actual return to duty. Accordingly, your question is answered in the negative.

Respectfully,

(Signed) J. R. McCarl

Comptroller General
of the United States

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg) (Oct. 1) Selfed ears in the selfing nurseries and crossed seed in the crossing plots were harvested the first two weeks in September. A large supply of seed of good quality was obtained from nearly all the best lines.

Yield tests of F_1, double, and inbred varietal crosses grown on the upland were harvested during the last two weeks. A high percentage of the ears were injured by the sugar-cane moth borer. The infestation is higher than it has been for several years.

The 1932 season was favorable for corn production and the yields are higher than those of 1930 and 1931.

ARKANSAS

Rice Branch Experiment Station, Stuttgart (Rice Production and Improvement, C. R. Adair)(Oct.1) All rice in the field varietal experiment

has been harvested except Supreme Blue Rose, Rexoro, and C. I. No. 4559. The earlier field varieties will be threshed next week. The earlier nursery varieties were threshed this week. The late varieties in the nursery are as yet not harvested.

All of the Early Prolific in farm fields has been cut and most of it is threshed. Both acre and mill yields are low. Some Supreme Blue Rose will be cut next week. The estimated yield of this variety also is low.

The weather in September was mostly cool and cloudy. This has slowed up maturity and retarded curing of the crop. There has not been enough rain to seriously hamper harvesting and threshing operations.

Winter oats were sown September 28, 29, and 30. The rainfall in September totaled 2.42 inches, so there is sufficient moisture for germination.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul, Wheat Breeding, E. R. Ausemus)(Oct.3) The weather in September was almost ideal for the growth of winter wheat and for fall work. The winter-wheat field and nursery plots emerged on September 4, with excellent stands. About two weeks later many plants were dead, resulting in a loss of 50 to 80 per cent in the spaced rows of rye and winter wheat. The entomologists identified the insect causing the injury as the spotted cucumber beetle, Diabrotica duodesimum puntata. The small white larvae puncture the young plants at the base, killing them. In some of the larger fields on the Station, the estimated damage is from 25 to 50 per cent. The spaced material has been replanted in so far as seed was available. There have been no reports of damage elsewhere in Minnesota.

Corn harvest on the Station has been completed.

Maximum temperature in September, 85° on the 30th; minimum, 41° on the 29; precipitation, 0.85 of an inch. The normal precipitation for September is 3.13 inches.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (Sept.30) The maximum temperature in September was 97°; minimum, 57°; mean 76.1°; total precipitation, 2.08 inches. The weather was favorable for cotton picking, but there is still insufficient moisture for the preparation of grain seed beds. A rain of 1.56 inches on September 5 enabled seed beds to be plowed, but since then there has not been sufficient moisture to permit further work. Some small grain is being sown but in most cases it is nearly impossible to do the work until there is rain.

The first seeding in the date-of-seeding experiment in the nursery was made on September 29. The ground was very rough and too dry to permit germination.

Reports from the Panhandle of Texas indicate that conditions for sowing wheat are very favorable in that section. There already is ample moisture for seeding and fall growth.

United States Dry Land Field Station, Dalhart (E. R. Steen)(Sept.15) Dry weather stunted the early grain sorghums so badly that some of the plants did not head. The earliest varieties in the May 16 planting are being harvested. Bags are being removed from seed heads in the milo-disease nursery and plant and stalk counts are being made in the spacing test.

Grain sorghums are generally poor in this section because of the prevailing drought. Sorghums planted after June 1 probably will produce higher yields than those planted earlier.

No precipitation was recorded during the first half of September.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Oct.1) The weather of the last half of September averaged dry and cool.

All of the broomcorn brush for yield data has been harvested. Harvesting of grain-sorghum plots and seed heads is progressing satisfactorily.

Maximum temperature for the last half of September, 98° on the 17th, minimum, 43° on the 28th. The precipitation for the last half of Septembe was 0.27 of an inch, making a total of 0.41 of an inch for September.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens)(Oct. 1) Lack of rain in September has slightly delayed the seeding of some nursery material. The second date of the rate-and-date-of-seeding experiment with winter wheat was sown on October 1. The first date, sown on September 15, is up with fair stands. This fall the winter wheat plots are being arranged so that they may be cut with a combine. There is an additional series for seed, to be harvested with a binder.

KANSAS

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)(Oct. 1) The weather in September was very satisfactory for farm work and for crop growth except that new seedings of grass and alfalfa were a little too dry during the first two weeks. The total precipitation was 4.03 inches; maximum temperature, 98° on the 18th; minimum 42° on the 23rd and 24th. Wheat ground is in ideal condition for seeding.

The agronomy department held a Corn and Sorghum Field Day at the Station on September 27. About 50 farmers and county agents from eastern Kansas inspected experimental work in corn, sorghums, soybeans, and forage crops.

Harvesting of the controlled pollination nursery will be completed today, and a start already has been made in husking pop corn and early hybrid in the field plots.

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)(Oct. 3) Fall work on experimental projects is well under way. Several fairly good rains in September put wheat seed beds in excellent condition. Seeding of winter wheat has been somewhat delayed, however, due to the danger of severe Hessian fly infestation. The fly population seems to be considerably greater than usual at this season of the year, and some very heavy fall infestations would not be surprising.

Seeding of the leaf-rust nursery was completed on September 30. Approximately 1,200 8-foot rows, consisting principally of hybrid selections, were sown in the regular leaf-rust nursery. In addition, 440 space-planted rows of the most promising selections were sown in the agronomy nursery. Thus far very little volunteer wheat is present in the vicinity of Manhattan and no collections of leaf or stem rust have been made.

Sowing inoculated seed in the bunt nursery will be delayed until about October 15. In general, however, the fall seems to be a little earlier than usual and the soil temperature is considerably lower than it was at this time last year.

Harvesting of seed in corn and sorghum plots is under way in the agronomy and botany experimental plots. The replacing of paper bags by small cloth bags on inbred heads of sorghum seems to have resulted in the development of excellent seed heads, remarkably free from moulds. Certain of the sorghum varieties were very severely infected with bacterial stripe (Bacterium andropogoni), but the rust infection on sorghums is much lighter than in 1931.

COLORADO

United States Dry-Land Field Station, Akron (Wheat Improvement, J. J. Curtis)(Oct. 1) Only 0.05 of an inch of rain fell in September, and as a result the soil is becoming dry. The maximum temperature was 92°, minimum, 36°.

All winter wheat has been sown. Emergence is irregular on fallow. The sorghums and prosos are all harvested.

The second Annual Field Day was held on September 20. There was a large attendance.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard) (Oct. 1) The weather is dry but otherwise favorable. In September 0.24 of an inch of rain fell, which was 1.31 inches below normal.

The maximum temperature in September was 94° on the 9th; minimum 28° on the 28th. The first killing frost occurred on September 21.

About three fifths of the seed sown in the winter wheat nursery on August 31 has not germinated so far.

Yields of spring-wheat varieties grown in triplicated 3-row plots in the uniform spring wheat yield nursery at Mandan, N. Dak., 1932

Variety	C.I.No.	Yield Bu.per acre	Variety	C.I.No.	Yield Bu.per A.
Marquis[a]	3641	30.1	H-44 x Marquis	11474	23.8
Hope x 1656.97	11471	29.2	Marquis x Hard Fed.	11464	22.9
Hope x Ceres	11428	28.1	Minn. D.C.	10021	22.6
Kota x Webster H-151	11462	26.8	Minn. D.C.	11487	22.5
Ceres	6900	26.3	Hope x Ceres	11432	21.3
H-42 x Marquis	11473	25.5	H-42 x Marquis	11472	21.1
Kota x Webster H-209	11463	25.1	Marquis-Emmer x Kota-Webster	11430	20.6
Marquis x Kota	11469	24.8	H-44	8177	19.9
Pentad x Marquis	11475	24.6	Reliance x Hope	11431	19.6
Minn.D.C.	10020	24.5	Minn. D. C.	10002	19.5
Marquis x Hard Fed.	11467	24.5	Reliance x Hope	11435	18.8
Hope x Florence	11470	24.1	Marquis x Kota	11468	18.6
			Reliance x Hope	11434	18.2

[a] Mixed, about 50 per cent Marquis.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(Sept.30) The weather in September has been dry and comparatively mild. Several killing frosts occurred, the first on the 13th, which is about the normal date. The maximum temperature was 95° on the 8th, the minimum was 23° on the 22nd; the total precipitation was only 0.21 of an inch. Rain will be needed to germinate the winter wheat and rye.

The acre yields obtained from varietal plots of oats, emmer, and barley are shown in the following table. All oat varieties had thin stands because they froze to the ground two days after emergence. Hot winds ripened all grain prematurely, resulting in low bushel weights.

Yields obtained from quadruplicated 56th-acre plots of oats, emmer, and barley at the Dickinson Substation, Dickinson, N. Dak., 1932.

Variety	C.I.No.	Yield Bu.per acre	Variety	C.I.No.	Yield Bu.per acre
Oats[a]			Richland Sel. 52	3008	34.1[b]
Wayne	2567	43.1	Victory	560	32.6
Rhoerson	459	43.0	Richland	787	31.8
Edkin	2330	40.4	Green Russian Sel.	2343	31.6
Rainbow	2345	40.1	Carleton	2348	30.4
Lincoln	738	39.6	Minrus	2144	30.3
Anthony	2143	38.1	White Russian	551	27.4
Gopher	2027	37.7	Twentieth Century	2643	25.0
Markton	2053	37.4			
Iogold	2329	36.2			
Emmer[c] [d]					
Vernal	3686	40.1	Yaroslav	1526	39.3

[a] Test weights varied from 26 to 33 lbs. per bushel. [b] Only two plots.

[c] Test weights of Vernal 28 lbs. per bushel and Yaroslav 30.5 lbs.

[d] Yield computed at 32 lbs. per bushel.

Variety	C.I.No.	Yield Bu. per acre	Variety	C.I.No.	Yield Bu. per acre
Barley[e]					
Steigum	907	42.9	Regal	5030	36.0
Lion	923	42.5	Hanna	203	35.6
Trebi	936	42.1	Manchuria	244	35.5
Horn	926	41.8	Velvet	4252	32.6
Svansota	1907	39.0	Composite Crosses	--	31.1
Odessa	182	38.5	White Smyrna	658	30.1
Hannchen	531	38.4	Nepal[f]	262	23.2
Glabron	4577	37.8	Wisconsin No. 38[g]	5105	17.0

[e] Test weights varied from 44 to 61 lbs. perbbushel. [f] Yield computed at 48 lbs. per bushel as with other barley varieties. [g] Stand thinner than that of other varieties.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(Oct.1) The uniform winter hardiness nursery was sown in dry soil on September 22. On the 25th a good rain supplied the necessary moisture for germination and the nursery should emerge in two or three days.

Field work for the year is completed. In the immediate future the work will consist of threshing head selections of hybrid material and compiling data.

Moisture for fall plowing has been deficient. The precipitation in September totaled 0.99 of an inch. The first frost of the season (28° on September 17) was 13 days later than usual. The frost-free period this season was unusually long, 112 days as compared with 87 days for the average year.

Yields for spring-wheat varieties in plots are shown in the following table.

Average yields of spring-wheat varieties grown in three 60th-acre plots on potato land at the Langdon Substation, 1932

Variety	C.I.No.	Yield (Bu. per acre)	Variety	C.I.No.	Yield (Bu. per acre)
Common			Durum		
Reliance	7370	35.3	Mindum x Pentad	8882	36.2
Komar	8004	35.2	Kubanka 75-3-15	--	35.3
Ceres	6900	33.5	N.D.R.216	--	34.7
Hope x Rel.N.1110	11433	31.7	Monad	3320	34.5
1656.97 x Hope, 2326	--	29.5	Golden Ball	11477	34.3
Minn.D.C.2305	10005	29.2	Kubanka	1440	32.8
H-44	8177	27.8	Mindum x Pentad	10006	32.5
Marquis	3641	27.7	Mindum	5296	32.3
Minn.D.C.2303	10003	27.5	Kubanka "M-H"	--	31.2
Marquillo	6887	27.2	Kubanka sel.132	8383	30.7
Hope	8178	26.8	Akrona	6881	29.8
Hope x Ceres N.1127	11432	26.5	Kubanka 75	--	28.3
Supreme	8026	26.0			
Reward	8182	22.5			

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland)(Oct.1) The precipitation in September totaled 0.58 of an inch. This was recorded on the 9th and was very beneficial to winter wheat. More rain is needed for maximum growth of winter wheat.

Temperatures: maximum, 89° on the 6th, minimum, 25° on the 20th.

The following tables show the average acre yield of winter-wheat and oat varieties grown in the varietal plot tests.

Average yield of oat varieties grown in four 1/50th-acre plots at the Judith Basin Branch Station, Moccasin, Mont, 1932

Variety	C. I. No.	Yield Bu. per acre	Variety	C. I. No.	Yield Bu. per acre
Iogold	2329	38.3	Markton	2053	32.5
Sixty-Day	165	37.3	Selection	357-112	29.4
Selection	357-185	36.6	Swedish Select	134	22.8
Carleton	2378	35.8	Idamine	1834	22.5
Selection	357-168	34.1	Alexander	1592	21.2

Average yield per acre of winter-wheat varieties grown in four 1/50-acre plots at the Judith Basin Branch Station, Moccasin, Mont., 1932

Variety	C.I.No.	Yield (Bu. per A.)	Variety	C.I.No.	Yield (Bu. per A.)
Eureka x Minhardi	8036	36.2	Karmont	6700	34.2
Kanred x Minessa	8045	35.5	Turkey x Minessa	8887	33.8
Minturki x Bel-Buf.	8033	35.3	Turkey	6152	32.9
Kanred x Minhardi	10000	35.0	Minhardi x Minturki	8215	32.3
Minard x Minhardi	8888	34.8	Kanred	5146	32.0
Minhardi x Minturki	8034	34.5	Minard x Minhardi	8218	31.9
Kanred x Minhardi	8042	34.5	Turkey	1558	31.7
Kharkof	1442	34.5	Newturk	6935	31.5
Nebr. No. 60	6250	34.4	Kharkof	6938	31.2
Kanred x Minhardi	8040	34.2	Oro	8220	30.3
Minard x Minhardi	8889	34.2	Smithsonian	10022	29.7
Minturki	6155	34.2	Turkey x Minessa	11505	25.8

IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, Harland Stevens)(Oct.1) The average maximum temperature for September was 80.3°. This was the second warmest September since 1912, or since climatic records have been kept on the Substation. The average minimum temperature was 38.0°. The first killing frost occurred on the 9th.

The rainfall in September totaled 0.02 of an inch, making the month one of three driest Septembers on record.

Winter wheat nurseries on the dry land in this section were sown in dry soil this year. Rain is badly needed for germination.

OREGON

Pendleton Field Station, Pendleton (Cereal Agronomy, J. F. Martin) (Oct.1) The weather in September was very dry. Some farmers are planning to seed soon, but most of them are waiting for rain.

Table 1 shows the yield of spring-wheat varieties grown at this Station in 1932. These varieties were seeded a month later than usual, so yields are very low. Insufficient precipitation in the late spring and early summer also contributed to the unsatisfactory results. Weights per bushel varied from 50.0 to 59.0 pounds. The early varieties were decidedly better than those maturing later.

Table 2 shows the yields of spring-barley varieties. The late season prevented Trebi from being as outstanding as usual. Considerable grain of Club Mariout was lost because of lodging.

Table 1. Yields of spring-wheat varieties grown in four 53rd-acre plots at the Pendleton Field Station, Pendleton, Oreg., 1932

Variety	C.I.No.	Yield (Bu.per acre)	Variety	C.I.No.	Yield (Bu.per acre)
White Federation	4981	30.3	Onas	6221	24.7
Hard Fed. sel.82	11421	29.7	Baart x Fed.	8254	26.0
Hard Fed. sel. 31	8255	28.5	Marquis	4158	25.6
Baart	1697	24.5	Reliance	7370	25.3
Federation	4734	28.9	Dicklow	3663	23.3
			Jenkin	5177	21.0

Table 2. Yields of spring-barley varieties grown in quadruplicated 53rd-acre plots at the Pendleton Field Station, Pendleton, Oreg., 1932

Variety	C.I.No.	Yield (Bu.per acre)	Variety	C.I.No.	Yield (Bu.per acre)
Club Mariout	261	50.0	Arequipa	1256	54.0
Flynn sel. 1	5911	54.6	Meloy sel. 3	4656	48.6
Peruvian sel. 1	5912	55.5	Trebi	936	54.3
Ezond	5064	52.6			

Agricultural Experiment Station, Corvallis (Foot Rots of Wheat, Roderick Sprague)(Sept.29) The Cercosporella footrot varietal test plot was seeded September 2 in naturally diseased soil in a field at High Prairi Wash. The grain showed fair emergence by September 23, on which date exact records of emergence were taken. However, unless there are heavy rains next month there probably will be considerable spring emergence in the foot rot section.

One half of the plot at High Prairie was covered with diseased soil from last year's plot, in an effort to insure uniform infection over a portion of the plot that does not have entirely uniform soil types.

A hygro-thermograph was installed near the plot on High Prairie, and, for comparison, another is being run some miles away at The Dalles where footrot does not thrive.

The acid-soil-footrot plot in the Alsea Valley was seeded on September 26. The soil was in very good condition but rain is necessary before emergence is possible. Spelt, winter oats, and some soft red winter wheats were sown.

Diseased soil was shipped from High Prairie to Corvallis, Oreg., for continuation of the Cercosporella plot on the east farm. It is still too dry to seed, as the weather in the Willamette Valley continues hot and rainless.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward)(Sept.30) The weather in September was moderate and uniform. No precipitation was recorded. All threshing of spring small grains was completed on the 13th, except at three of the county nurseries at high altitude stations. Favorable yields were obtained in most counties.

Some early corn varieties and grain sorghums have matured but in general these crops are about two weeks later than last season.

Seeding of the winter wheat nursery was started on September 29.

Dr.J.H.Martin and the writer visited a number of grain-sorghum nurseries and some commercial fields in southern Utah. Dwarf hegari and Dwarf White durra showed some interesting variations in different sections of the State.

At some stations frosts occurred every month this year and therefore corn and grain sorghums made little growth.

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

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Personnel (Oct. 11-25) and Field Station (Oct. 1-15) Issue

PERSONNEL ITEMS

Dr. Roderick Sprague, stationed at Corvallis, Oreg., in the study of footrots of cereals, and Dr. C. S. Holton, stationed at Pullman, Wash., in stinking smut investigations, arrived in Washington on October 21. The research programs of both Dr. Sprague and Dr. Holton have reached a place where, in order to make satisfactory progress, it is necessary that they have access to special control equipment of a type not available at the stations where they are headquartered. This equipment is available in the Division greenhouses and laboratories in Washington and at Arlington Farm, in Virginia, and in order to insure progress these men have been transferred to Washington for a period during the current winter to conduct their research. Obviously, it is not possible for the Division to maintain special equipment at all cooperating stations nor can cooperating stations be expected to do so. The advantages of a temporary transfer in such cases as the one here noted can hardly be overestimated.

MANUSCRIPTS SUBMITTED

37. On the Genetic Nature of Induced Mutations in Plants, by L. J. Stadler. Oct6.Sixth Internatl. Cong. Genetics (Ithaca) Proc.

38. A Cytological Study of the Teliospores, Promycelia, and Sporidia in Puccinia malvacearum, by Ruth F. Allen. Oct. 7. Phytopathology.

39. Wheat Smuts and Their Control, J. A. Faris, V. F. Tapke, and H. A. Rodenhiser. Oct. 10. (Revision of Farmers' Bulletin. 1540)

RECENT PUBLICATIONS

An Undescribed Loose Smut of Barley. V. F. Tapke. Phytopathology 22(10): 869-870. October, 1932.

The Effect of Bunt on Yield of Wheat. H. H. Flor, E. F. Gaines, and W. K. Smith. Jour. Amer. Soc. Agron. 24(10): 778-784. October, 1932.

Étude sur les mélanges de virus. H. H. McKinney. Second Internatl. Cong. Compar. Path. Proc. v. 2. p. [449]-453, illus. [Paris] [1932]

AMERICAN SOCIETY OF AGRONOMY

The twenty-fifth annual meeting of the American Society of Agronomy will be held at the Willard Hotel in Washington, D. C., on Thursday and Friday, November 17 and 18.

AMERICAN RED CROSS

"Annual Roll Call - American Red Cross

The annual membership roll call of the American Red Cross will take place during the period from November 11 to 26. The facilities of this splendid organization are being utilized to relieve distress throughout the country on a scale never previously attempted.
To continue this work and provide for the regular activities of disaster relief, assistance to service men and veterans, public health nursing, etc., requires the support of all our people. The employees of the Department of Agriculture have always responded generously to such appeals and I urge them to give increased support to this most urgent plea.

(Signed) Arthur M. Hyde,
Secretary".

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins) (Oct. 18)

The total precipitation in September was 3.92 inches. The rainfall was so distributed that field work was not delayed.

The Station Field Day program was held on September 6. There were about 125 persons present. All appeared to be deeply interested in the work that is being carried on at the Station. Short talks were given by representatives of the Louisiana Agricultural Experiment Station and the U. S. Department of Agriculture.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Oct.17) The weather of the first half of October was dry. There were several cool nights. A light frost nipped the sorghum leaves but did not kill the plants.

Grain sorghum plots have been harvested for yield. Seed heads of both sorghums and broomcorn also have been harvested.

The maximum temperature was 90° on the 3rd; minimum, 33° on the 11th. The precipitation totaled 0.05 of an inch.

Southern Great Plains Field Station, Woodward (Wheat Improvement Edmund Stephens)(Oct. 17) The winter-wheat varietal plots were sown on October 13 and 14, and nursery seeding is now in progress. There has been no effective rainfall for nearly two months, but there seems to be enough moisture in the ground for emergence to fair stands. Some early sown wheat on farms in this vicinity is in very poor condition on account of the drought.

NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, N. E.Jodon) (Boyd Faulkner)(Oct.15) Winter-wheat varieties were sown on September 15. Those on fallow ground emerged September 20 and have made good growth despite the limited moisture. The varieties on corn stubble have failed to germinate.

Table 1. Average yields of 20 varieties of winter wheat grown in duplicate 40th-acre plots at the North Platte Substation, North Platte, Nebr., 1932

Variety	C.I.No.	Yield (Bu.per A)	Variety	C.I.No.	Yield (Bu.per A)
Kharkof	1442	10.7	Fulhard	8257	8.7
Minturki	6155	10.7	Sherman	4430	7.4
Kharkof sel.	6686	10.4	Kanred	5146	7.4
Turkey sel.	10016	10.4	Newturk	6935	7.0
Prelude x Kanred	8886	10.0	Beloglina sel.	8884	7.0
Nebraska No.60	6250	9.7	Turkey (local)	--	6.7
Oro	8220	9.4	Cheyenne	8885	6.7
Kanred x Minturki	10012	9.4	Tenmarq sel.	10089	6.4
Blackhull	6251	9.0	Beloglina	1543	6.0
Tenmarq	6936	9.0	Beloglina sel.	10013	2.7

Table 2. Average yields of 16 varieties of spring wheat grown in quadruplicate 40th-acre plots at North Platte, Nebr., 1932

Variety	C.I.No.	Yield (Bu.per A)	Variety	C.I.No.	Yield (Bu.per A)
Ceres (check)	6900	11.0	Marquis	3641	6.9
Reliance	7370	9.2	Progress	6902	6.7
Kubanka	8177	8.5	Akrona	6881	6.5
Komar	8004	8.3	Java (Kearney Co.)	--	6.2
Mindum	5296	8.2	Hope	8178	6.2
Marquillo	6887	7.5	Garnet	8181	4.4
Supreme	8026	7.3	Reward	8182	4.0
H-44	8177	7.2			
Double Cross Minn.2303	10003	6.9			

Table 3. Average yields of 17 varieties of oats grown in quadruplicate 40th-acre plots at North Platte, Nebr., 1932

Variety	C.I.No.	Yield (Bu.per A)	Variety	C.I.No.	Yield (Bu.per A)
Markton x Sixty-Day	2379	20.0[a]	Burt sel.N.P.10	--	13.1
Markton	2053	16.4[b]	Carleton	2378	12.5
Iowar	847	16.2	Burt	2491	11.5
Fulghum	708	16.2	Burt	293	11.2
Franklin	2892	15.0[b]	Early Red Texas	2823	10.9
Markton x Sixty-Day	2358	14.4	Nebraska No.21	841	10.3
Burt sel.N.P.7	--	14.0	Kherson	459	9.7
Iogold	2329	13.4	Brunker	2054	6.5
Gopher	2027	13.1			

[a] Average of six plots; [b] Grown in duplicate in a separate series from other varieties.

Table 4. Average yields of 17 varieties of barley grown in quadruplicate 40th-acre plots at North Platte, Nebr., 1932

Variety	C.I.No.	Yield (Bu.per A)	Variety	C.I.No.	Yield (Bu.per A)
Trebi	936	11.1	Smyrna 280	5466	6.6
Coast sel.N.P.4	5488	10.6	Glabron	4577	6.3
Coast	690	10.6	Comfort (short)	4578	5.6
Sandrel	937	9.0	Spartan	5027	4.8
Six Row Common	4640	8.1	Comfort (tall)	4578	4.6
Ezond	5064	8.1	Flynn	1311	4.4
McClymont sel.N.P.1	5266	7.5	Club Mariout	932	3.5
McClymont	2126	6.9	Vaughn	1367	3.1
McClymont sel.N.P.5	5510	6.7			

Agricultural Experiment Station, Lincoln (Wheat Improvement, C. A. Suneson)(Oct.11) Many farmers in central and eastern Nebraska awaited the "fly-safe" seeding date this year because of unpleasant experiences with Hessian fly in 1932. The fly-safe date this year for the area in question was from September 29 to October 4. Wheat sown during this period at Lincoln required from 9 to 11 days to emerge. This slowing up of germination was due entirely to unusually cool weather, since soil moisture was adequate. Coupled with the unusually favorable weather for bunt infection is the probability that less seed than usual was treated because of prevailing low prices for wheat.

All major wheat-yield test plantings have been made. A large bunt nursery is planned, but has not yet been seeded. Enlarged greenhouse quarters will make possible a greater number of controlled freezing experiments this winter. A number of F_1 hybrids will be grown under glass.

A new $30,000 seed room and crops laboratory is under construction. The old seed room and nearly all seed reserves were destroyed by fire in May, 1931.

SOUTH DAKOTA

United States Field Station, Redfield (Wheat Improvement, E. S. Mc Fadden)(Oct.5) The precipitation in September was only 0.94 of an inch. Because of the low moisture content of the soil and the presence of many grasshoppers and crickets, sowing of winter wheat in experiment plots was delayed until after a rain of 0.41 of an inch on September 11. Field plots of winter wheat were sown on September 13, and the nursery on September 14. Good stands were obtained, but plants along the ends of the plots were somewhat injured by grasshoppers, although the insects are not numerous at present.

The grain from the 1932 field plots has all been fanned, and the yields and test weights have been recorded. All the nursery grain has been winnowed and the yields and test weights are now being taken. Fall plowing was completed last week.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)(Oct. 17) The weather of the first half of October has been dry. The total precipitation was 0.34 of an inch.

The dry, mild weather has been favorable for flax still standing in the field. Average yields of seven varieties from three 5-foot rows in the after-ripening-loss experiment, harvested on five dates, are as follows:

Date of harvest	Yield (Bu.per A)
August 8 - 22	13.6
September 1	12.8
September 15	12.3
September 30	12.3
October 15	4.3

The loss between September 30 and October 15 was caused chiefly by rabbits. The crop from some individual rows was completely destroyed and none of the rows entirely escaped injury.

Average yields of 19 varieties of flax and one of safflower grown in three 50th-acre plots at the Northern Great Plains Field Station, Mandan, N.Dak., 1932

Variety	C.I.No.	Yield (Bu.per A)	Variety	C.I.No.	Yield (Bu.per A)
Sel.C.I.119	474	5.1	Redwing	499	3.4
Hyb.160 x 179	496	4.9	Linota	244	3.2
Sel.167-254	475	4.7	Sib No.206	473	3.0
Sel.Hyb.19 x 112	478	4.5	N.D.40034(B444)	491	3.0
H 10-3-52-5	494	4.4	Bison	389	2.8

Variety	C.I.No.	Yield (Bu.per A)	Variety	C.I.No.	Yield (Bu.per A)
Rio x Buda bulk	-	4.2	Golden	-	2.8
Sel.Hyb. 167 x 179	476	4.2	Buda	326	2.7
Rio	280	4.1	N. D. R. 114	13	2.5
H 11-2-59-1	495	3.8	Slope	274	2.2
Walsh	647	3.8	Safflower	-	9.6a/

a/ Bushel weight of safflower figured as 40 pounds.

The yields were low because of injury from soil blowing. This necessitated reseeding in series 2 and 3. The position of the land in the undamaged Series 1 doubtless favored the later-maturing varieties which head the list in yield.

Yields of 7 flax varieties grown in cultivated rows and in drilled (uncultivated) 50th-acre plots at Mandan, N. Dak., 1932

Variety	Yield (Bu.per A) Cultivated (3 rows)	Drilled (12 rows)	Av.
Buda x 19x112 Hyb.	9.8	8.3	9.1
160 x 179 Hyb.	9.2	8.0	8.6
C.I. 161 sel.	9.2	7.1	8.2
Bison, check	8.5	7.8	8.2
H 10-2-59-3	8.7	7.4	8.1
Arg.1-25-70 sel.	8.3	7.1	7.7
Buda sel.	7.6	6.7	7.2
Average	8.8	7.5	

The land on which this experiment was grown was level and uniform, and the cultivared plots produced the higher yields in each case.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland)(Sept. 23) Acre yield of 9 varieties of flax grown in three 50th-acre plots at the Judith Basin Branch Station, Moccasin, Mont., 1932

Variety	C.I.No.	Yield (Bu.per A)	Variety	C.I.No.	Yield (Bu.per A)
Newland	188	9.2	Bison	389	6.3
Redwing	499	8.0	N.D.R. 114	13	6.3
Sib No.206	473	7.7	Rio (L. 79)	280	4.9
Linota	244	7.3	Sel.167-254	475	4.6
Sel.64-6	191	6.5			

OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens) (Oct.5) No rain of any consequence has fallen in the Columbia River Basin of Oregon since last May. The total rainfall at the Station from June to September, inclusive, was only 0.23 of an inch. The surface fallow ground is much too dry for wheat to germinate. However, some farmers have started to seed in the dust.

Yields of winter wheat, spring wheat, spring oats, and spring barley in the varietal experiments are shown in Tables 1, 2, 3, and 4. Some of the low yields of winter wheat were due to thin stands caused by late sowing in the fall, and to failure of many plants to emerge.

Table 1. Average yield of winter-wheat varieties grown in three 20th-acre plots at the Sherman County Branch Station, Moro, Oreg., 1932

Variety	C. I. No.	Yield (Bu. per A)
Turkey (Kans.No.373-141)	11424	15.5
Local Turkey	4429	14.8
Turkey (North Powder)	11425	14.8
Kharkof	8249	14.5

Variety	C. I. No.	Yield (Bu. per A)
Triplet	5408	13.9
P1068 x Preston	8244	13.6
Golden	10063	13.6
Turkey	1571	13.5
Rio	10061	12.4
Fortyfold sel.29	10062	12.2
Oro	8220	12.1
Kanred	5146	11.4
Hybrid 128 x Fortyfold	10066	11.4
Federation	4734	11.3
Fortyfold x Federation	8247	10.4
Ridit	6703	10.1
White Odessa	4655	10.2
White Odessa x Hard Federation	10065	10.2
Arco	8246	10.0
Marquis x Kanred	11423	9.3
Fortyfold sel.54	10064	9.2
Hybrid 128	4512	9.2
Fortyfold x Hard Federation	11422	9.1
Arcadian x Hard Federation	11426	9.0

Table 2. Average yield of spring-wheat varieties grown in four 20th-acre plots at Moro, Oreg., 1932

Variety	C.I.No.	Yield (Bu.per A)	Variety	C.I.No.	Yield (Bu.per A)
Hard Fed.sel.71	8256	20.5	Onas	6221	19.2
Hard Fed.sel.31	8255	20.4	White Fed.	4981	18.8
Federation	4734	20.1	Baart x Fed.	8254	18.4
Hard Fed.	4733	19.8	Pacific Bluestem	4067	17.5
Hard Fed. sel.82	11421	19.8	Baart	1697	17.4
Hard Fed. sel.79	11420	19.3	Marquis	4158	15.1

Table 3. Average yield of spring-oat varieties grown in four 20th-acre plots at Moro, Oreg., 1932

Variety	C.I.No.	Yield (Bu.per A)	Variety	C.I.No.	Yield (Bu.per A)
Iogold	2359	44.1	Three Grain	1950	38.9
Richland	787	43.0	Swedish Select	134-1	38.6
Sixty-Day	165-1	43.0	Siberian	635	37.5
Markton	2053	39.2	Western Wonder	1951	31.6

Table 4. Average yield of spring-barley varieties grown in four 20th-acre plots at Moro, Oreg.,1932

Variety	C.I.No.	Yield (Bu.per A)	Variety	C.I.No.	Yield (Bu.per A)
Peruvian	935	34.3	Atlas	4118	29.9
Arequipa	1256	31.8	Chevalier	1419	29.3
Flynn (1311-1)	5911	31.8	Trebi	936	28.9
Pryor	1429	31.3	Meloy (1176-3)	4656	28.1
Club Mariout	261	31.0			

CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, L. L. Davis)(Oct.4)

The nursery and varietal plots have better stands than they had last year and probably will produce higher yields. In the fertilizer experiments the stands are not so good as last year and the yields will be lower.

Harvest of the plots and nursery is in progress, and threshing will begin about October 10.

Rice harvest in the Sacramento Valley is in full swing. Some of the early varieties have been threshed. The quality of many of the lots of early harvested rice was poor.

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

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Vol. 24 November 10, 1932 No. 18
Personnel (Oct.25-Nov.10) and Field Station (Oct.16-31) Issue

MANUSCRIPTS SUBMITTED

40. Corn Hybrid and Variety Experiments, by G. H. Stringfield. Oct. 18. Ann. Rpt. Ohio Agr. Expt. Sta.

41. Comparative Responses of a Spring and a Winter Wheat to Day Length and Temperature, by Annie M. Hurd-Karrer. Oct. 24. Jour. Agr. Research.

42. Heterosis: Specific not General in Nature, by F. A. Coffman. Oct. 28. Science.

RECENT PUBLICATIONS

Physiologic Specialization in Puccinia graminis secalis. Ralph U. Cotter and Moses N. Levine. Jour. Agr. Research 45(5): 297-315, illus. Sept. 1, 1932. (Cooperation between Division of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

Heterothallism and Hybridization in Sphacelotheca sorghi and S. cruenta. H. A. Rodenhiser. Jour. Agr. Research 45(5): 287-296, illus. Sept. 1, 1932.

ADMINISTRATIVE NOTES

FURLOUGH LEAVE

All field personnel have been supplied with a copy of B. P. I. Memo. 670. This memorandum explains the operation of the furlough provisions of the Economy Act now in force. There seems to be some misunderstanding of regulations, however, and further information is presented as follows:

All permanent full-time employees, whether on a per annum, per month, or per diem basis, are required to take at some time during the year when it does not interfere with work a furlough of 24 working days, Saturdays counting as half days. The 24 days with 4 Saturday half holidays are equivalent to the 26 working days of an average month. The salary month in the Government service is 30 days. To cover the furlough period, therefore, a deduction in salary is made of 1-1/4 days' pay for each working day or fraction of a working day taken in furlough. In order to spread salary reductions throughout the year a deduction of 2-1/2 days' pay is made from each month's wages, and a credit of 2 days is given for furlough time.

Furlough leave may be taken each month in accordance with this credit, or may be allowed to accumulate. Furlough leave in excess of this accumulated leave can not be taken, however, without a salary deduction for the month in question covering this excess. This deduction is credited as a part of the total for the year, and when this total is reached no further deductions are made on account of furlough.

Deductions apply to all employees, whether permanent full-time workers or temporary, if the salary rate exceeds 1,000 dollars per annum. Even temporary employees paid at a rate in excess of 1,000 dollars per annum receive a deduction of 8-1/3 per cent, except where this deduction would reduce pay on a yearly basis at the rate paid to less than 1,000 dollars. No employee is required to take furlough that will reduce his salary below 1,000 dollars. Employees whose salary rates do not exceed 1,000 dollars per annum are not required to take furlough leave, but they receive no annual leave, and may take leave only without pay, and then only with approval from Washington. While salary deductions apply to temporary or intermittent employees they do not take furlough leave.

Accumulated furlough time may be used as the work will permit in the same way as annual leave has been used heretofore. Application for furlough should be made as far in advance as possible on Dept. Form No. 17a "Application for Leave" and submitted to Washington for approval. For short periods of leave, one day or less, the application should also show return to duty when submitted. Furlough taken so late in the month that requests can not reach Washington by mail before the end of the pay period should be reported in the monthly time report by wire.

If the employee finds it more convenient to take all of his furlough leave in any one month (work permitting) and before he has accumulated the full 24 days, this may be done. His salary for that month, however, will be less by the amount due for the number of days in excess of accumulated leave. There will be no later salary deductions in such cases.

In salary deductions for furlough leave in excess of that accumulated, any fractional part of a day is considered a day. The difference between this greater amount and the time actually used is credited on leave records and may be used later.

B. P. I. Memo. 670, noted above, should be read carefully. Do not hesitate to ask questions on points that are not clear.

M. A. M.

VOUCHERS

When sending in Form No. 1034 vouchers, enough information should be given so that the official nature of the expense and the purpose for which funds are expended can be readily determined.

In order to conserve stationery letters of transmittal should not accompany vouchers. The carbon copies of vouchers retained in the field offices should be sufficient evidence that vouchers have been transmitted.

ANNUAL REPORTS

Reduction in the size of annual reports has necessitated the revision of instructions for preparing reports. These are being sent out to field men immediately. They should be read carefully and, in addition, each individual should bear in mind the necessity for curtailing his report to the greatest extent consistent with clarity and completeness of record. Conciseness is essential.

M. A. M.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

GEORGIA

Coastal Plain Experiment Station, Tifton (Corn Breeding, H. S. Garrison)(Oct.28) The past season has been very satisfactory for corn-breeding experiments and corn production. At no time during the growing season were there more than 12 days without ample rainfall.

Sufficient seed of good quality was obtained of practically all breeding material A germination test of 344 selfed ears was planted in the open ground on October 13 under approximately spring corn-growing conditions and the germination was generally good. Corn yields were very satisfactory this year. In the yield test the average of Whatley checks was 63.3 bushels per acre. The highest yielding F_1 cross between selfed lines produced 87.7 bushels per acre or 38.5 per cent higher than Whatley. (In 8 out of 12 years Whatley has been the highest yielding variety at this Station.) The yield of 87.7 bushels was the average of the two reciprocals of the cross, these two ranking first and second in the yield test.

The oat and wheat rust nurseries were sown October 20 and 21 and all of the varieties and strains are up.

ARKANSAS

Rice Branch Experiment Station, Stuttgart (Rice Production and Improvement, C. R. Adair)(Oct.26) The first killing frost of the season occurred on October 6, the earliest frost date in the six years since this Station was established. Nearly all rice was mature at that time, so the damage was not very great. Rexoro and Iola in the field-varietal experiment and some of the late-sown rice in the date-of-seeding experiments were injured to some extent.

Rexoro is the only variety in the varietal test that has not yet been harvested. All of the rice on commercial fields has been cut, except for a very few late-sown fields. Unless there is unfavorable weather, nearly all rice will be threshed within the next two weeks.

The acre yields are low this year. The mill yields of the Early Prolific that was harvested early in the season were low, but those of the late harvested Early Prolific and those of Blue Rose are excellent.

The oats, which were all sown the last three days in September, are up to a good stand and are looking well.

Maximum temperature, 88.5° on October 23; minimum, 31.5° on the 6th; precipitatio 1.89 inches.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (Oct. 15) The weathe during most of the first half of October was clear. It was very favorable for harvesting. On the 2nd, 0.26 of an inch of precipitation and on the 4th 0.87 of an inch were recorded. Temperatures have been normal or above and no killing frosts have occurred.

Following the rains of October 2 and 4 nursery seed beds were prepared and seeding was started on the 6th. One acre containing the advanced nursery and the head row nursery was sown under favorable conditions and the plants soon emerged. Another portion of the nursery was sown in dry soil. Oats and barley nurseries were also sown in dry soil. The field sowings of varietal tests of wheat, oats, and barley were made under favorable conditions and have emerged to good stands. All nursery seedings would be greatly benefited by a good rain.

[Nov. 1]

The maximum temperature in October was 92°; minimum, 34°; precipitation, 1.33 inches. The rainfall was 2.37 inches below normal.

All winter wheat and other small grains were sown during the month. However, conditions remain unfavorable for growth. The precipitation since July is approximately 5 inches below normal. Field sowings were made under fairly favorable conditions and soon emerged. However, they have made very slow growth due to lack of sufficient moisture. The grain in the portion of the nursery sown in dry soil more than three weeks ago has not yet germinated.

From October 17 to 22, the writer made a trip to the Panhandle of Texas where the hard-wheat nursery and the varietal tests were sown. These seedings were made under favorable conditions and there is sufficient moisture for fall growth.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Nov. 2) The weather of the last half of October was dry and cool. So far there has not been a killing frost in the vicinity of the Station, though some communities in the county have had hard freezes that have stopped plant growth.

The sorghum plots have been harvested and the last seed heads are now being harvested. Most grain yields appear better than was expected.

The maximum temperature for the last half of October was 91° on the 18th; minimum, 33° on the 29th. The precipitation was 0.59 of an inch in four measurable showers, making a total of 0.64 of an inch for October.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens) (Nov. 2) The winter-wheat varietal plots emerged on October 21, and a large part of the winter-wheat nursery is up. Emergence was aided by a shower of 0.4 of an inch, and stands are good. However, the season remains dry, and for satisfactory growing conditions rain is much needed.

KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker) (Nov. 1) Sowing of the winter-wheat nursery on the new site between the campus and the agronomy farm began on September 26. Seeding of rod rows was completed on October 1. Space-planted hybrids were sown during the first week of October. Good stands were obtained in both yield trials and hybrid plantings.

Seeds of winter-wheat crosses made in the greenhouse last winter and seeds of parental varieties were sown in the greenhouse the last week of October. Most of the F_1 plants to be grown in the greenhouse this winter involve parents resistant or susceptible to Hessian fly.

Selfed heads and the general crop were harvested in the sorghum-breeding nursery during the last half of October. A selection from the cross Atlas x Sunrise kafir appeared promising this year and will be more widely tested in 1933.

The weather in October was very favorable for field work. The precipitation was only 0.6 of an inch. The first killing frost occurred on October 11, but it was not severe. Maximum temperature, 88° on the 14th; minimum, 27° on the 26th.

COLORADO

United States Dry-Land Field Station, Akron (Wheat Improvement, J. J. Curtis) [Oct. 31] Winter wheat on fallow has emerged with fair to good stands, but that on corn land has failed to emerge.

Maximum temperature in October, 85°; minimum 15°; precipitation 0.45 of an inch. Three snows fell to a total depth of 2 inches.

Yields of proso grown at the Akron Field Station, 1932

Yield (Bu. per acre)

Variety	Replications on fallow		Replications on Sudan stubble		Av.
	1	2	1	2	
White Ural	4.6	11.0	.5	3.2	4.8
Red Russian	8.6	22.5	1.4	8.6	10.3
Early Fortune	11.0	16.9	1.4	2.1	7.9
Tambov	16.6	23.9	1.6	2.7	11.2
Hansen White Siberian	10.0	18.6	1.9	3.8	8.6
Turghai	7.5	27.1	1.1	4.1	10.0
Yellow Manitoba	8.6	23.6	1.1	3.8	9.3
Black Voronezh	9.6	18.2	.5	3.0	7.8
White French	3.8	5.4	0	1.1	2.6

Yield of foxtail millet grown at the Akron Field Station, 1932

Variety	Yield (Bu. per acre) Replications on fallow 1	2	Replications on Sudan stubble 1	2	Av.
Dakota Kursk	3.6	15.0	0	0	4.7
Siberian	1.2	18.0	0	0	4.8
Goldmine	1.2	19.8	0	1.2	5.6
Hungarian	4.0	18.0	0	3.0	6.3
White Wonder	4.8	22.8	0	3.6	7.8
German	1.8	9.6	0	1.8	3.3
Barnyard Millet	0	1.8	0	.6	.6

SOUTH DAKOTA

United States Field Station, Redfield (Wheat Improvement, E. S. McFadden)[Nov.1]

Yields of spring-wheat varieties grown in 50th-acre plots at the U. S. Field Station, Redfield, S. Dak., 1932

Class and variety	C. I. No.	Yield (Bu. per acre)
Hard Red Spring:		
Marquis x Kota 1656.85	8385	23.9
Kota	5878	21.7
Minn. No. 2305	10,005	21.4
Ceres	6900	21.3
Marquis x Kota 1656.48	10,014	20.3
Reliance	7370	19.7
Minn. No. 2303	10,003	19.2
Marquillo	6887	18.6
H-44	8177	18.2
Reward	8182	18.1
Supreme	8026	17.6
Marquis	3641	16.3
Hope	8178	14.8
Power	3697	11.4
Durum:		
Akrona	6881	21.3
Acme	5284	20.8
Nodak	6519	20.8
Mindum	5296	17.9
Kubanka	1440	16.8
White:		
Quality	6601	15.7

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard)(Nov.) The portion of the winter-wheat nursery that germinated soon after sowing on August 31 is doing nicely. About two-fifths of the nursery has germinated since the middle of October and plants are protruding only an inch or so above the ground.

The weather in October was comparatively mild. The maximum temperature was 82° on October 1; minimum, 17° on the 19th. Freezing temperatures occurred on 23 nights. Rain, sleet, and snow on October 18, totaling 1.44 inches, constituted the first appreciable precipitation since July 4. The total precipitation in October was 2.12 inches.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (Oct. 31) The ground is covered with snow, most of which fell during the blizzard of October 19. It was the worst October blizzard on record at this Station and one of the worst for all months except that the temperature was slightly higher than usual, having been from 22 to 24° during the storm. About one foot of snow fell, stopping all travel on the highways for several days. Freezing rain just before the storm caused ice, to form on the wires to such an extent that subsequent winds broke down the poles and put telephone, telegraph, and electric light lines out of commission for days.

The total precipitation for the month, mostly in the form of snow, was 2.12 inches. Temperatures in October varied from 81° on the 1st to 15° on the 20th and 31st.

Winter wheat began to emerge about the 17th and has been covered with snow since that time.

(Nov. 4)

Acre yields of flax varieties grown in triplicated 56th-acre plots at the Dickinson Substation, 1932

Variety	C.I.No.	Yield (Bu.per acre)	Variety	C.I.No.	Yield (Bu.per acre)
Bison	389	7.5	Golden	---	3.5
N. D. 40034	491	7.5	Sib No. 206	473	3.5
Walsh	645	6.6	Linota	244	3.4
Rio	280	6.3	N. D. R. 52 a/	490	3.1
Redwing	320	5.9	N. D. R. 114 a/	489	2.9
Newland	188	5.1	Hybrid 19 x 112	383	2.9
N. D. 40046	492	4.3	Hybrid 167 x 179 b/	476	1.4
Buda	326	3.9			

a/Only 2 plots. b/Only 1 plot.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(Oct. 31) The weather in October has been colder and wetter than usual for this month. The mean temperature, 35°, was five degrees below normal, and the precipitation totaled 2.95 inches, as compared with the normal of one inch. Nearly all of the precipitation fell at temperatures just below or near freezing and the result was the worst ice storm ever remembered in this part of the country. A 4-day precipitation of two inches of rain and sleet left a coating of ice three inches in diameter on the heavy power line wires and caused irreparable damage to nearly every tree in town. After two weeks the country telephone and light lines are still down. The precipitation was much needed, but many farmers had not completed their fall plowing.

The uniform winter-hardiness nursery was up not more than three inches when cold weather commenced. It is now well covered with six inches of snow.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland)(Nov.1) The precipitation of the past month has materially improved soil moisture conditions. The large acreage of winter wheat in this vicinity should go into the winter in good condition.

Precipitation, 1.22 inches; temperatures: minimum, 15° on the 30th: maximum, 80° on the 1st.

The yields of spring-wheat varieties grown on the Station this year are presented in the following table.

Average yield of spring-wheat varieties grown in four 50th-acre plots at the Judith Basin Branch Station, Moccasin, Mont., 1932

Variety	Nursery No.	C.I.No.	Yield (Bu. per acre)
Marquis x Hd. Fed.	649	11464	28.6
Do.	657	11466	26.7
Baart	-	1697	26.6
Hard Federation	-	4733	26.5
Marquis x Hd. Fed.	666	11467	25.7
Do.	456	11464	25.7
Kota x Marquis	-	10014	25.4
Ceres	-	6900	24.2
Peliss sel. 14	-	10001	24.1
Manred x Marquis	11	--	24.0
Federation	-	4734	23.8
Double Cross	-	10003	23.7
Supreme	-	8026	23.6
Reward	-	8182	23.6
Red Bobs sel. 32	-	--	23.0
Marquillo	-	6887	23.0
Reliance	-	7370	23.0
Reliance x Hope	1128	11431	22.7
Mondak	-	7287	22.7
Marquis	-	3641	22.3
Mindum	-	5296	22.0
Kubanka	-	1440	21.7
Power	-	3697	20.9
Hope	-	8178	19.9

Northern Montana Branch Station, Havre (M. A. Bell)(Oct. 31)

Acre yields of 9 varieties of flax sown May 24 in triplicate 30th-acre plots on disked corn ground at the Northern Montana Branch Station, 1932

Variety	C.I.No.	Yield (Bu.per acre)	Variety	C.I.No.	Yield (Bu.per acre)
Newland	188	8.6	Rio (L.79)	280	5.9
Reserve	19	7.9	Argentine	488	5.5
Linota	244	7.0	Buda	326	3.8
Stark	185	6.6	Bison a/	389	2.9
Redwing	431	6.1			

a/The stand of Bison was greatly reduced by "brittle canker" or heat canker.

OREGON

Pendleton Field Station, Pendleton (Cereal Agronomy, J. F. Martin)(Oct. 31) A total of 1.35 inches of rain has fallen in October. The first rain of any consequence this fall was on October 13 and 14. Many farmers commenced seeding immediately rather than wait for the weeds to sprout.

Seeding in the nursery was begun on October 19 and completed on October 26. The winter-wheat varietal trial in field plots was sown October 25. Because of cool temperatures no emergence is evident thus far.

A number of farmers in this section are unable to finance the fall seeding of wheat at the present price for the crop.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward) Nov. 1) Sowing of the winter-wheat nursery was completed during the first week of October. Emergence took place by October 10, although only 0.40 of an inch of rain has fallen since August. The plots were sown on October 17.

Harvesting of corn and grain sorghum was completed during the month. Most of the other outdoor work was also finished.

Several storm centers have passed to the north of this section, but the high pressure following the storms caused low temperatures on many nights, ranging from 20° to as low as 15°. The mean temperature for the month was 44°. The first frost of the season occurred on October 3, making a growing season of 157 days.

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 24 Nov.-Dec. 25, 1932 No. 19
Personnel (Nov.11-25) and Field Station (Nov.1-15) Issue

M. M. Stoneberg, staticned at the Agricultural Experiment Station, Baton Rouge, La., arrived in Washington on November 17 to conduct studies on corn mosaic with special greenhouse equipment at the Arlington Experiment Farm. He will be in Washington for about three months.

Mr. G. H. Stringfield arrived in Washington on November 16 from his headquarters at Wooster, Ohio. He will spend about 12 days on problems pertaining to cooperative corn investigations.

MANUSCRIPTS SUBMITTED

43. Sorghums for Grain and Forage, by B. F. Kiltz, J. B. Sieglinger, W. M. Osborn, B. F. Barnes, and H. H. Finnell. Nov. 9. Oklahoma Station Bul.

The following 15 abstracts approved November 12 for Phytopathology:

44. Heterothallism in Puccinia graminis, P. coronata, and Melampsora lini, by R. F. Allen.

45. Basal Glume Rot of Barley, by C. Elliott and A. G. Johnson.

46. Nature of Resistance of Corn to Seedling Blight, by J. G. Dickson, K. P. Link, and A. D. Dickson.

47. Disease-Resistant Wheats Recently Introduced from Russia, by J. G. Dickson and A. G. Shands.

48. Influence of Soil Moisture and Soil Temperature on Infection of Wheat by Urocystis tritici, by J. A. Faris.

49. Bacterial Leaf Blight of Dent Corn, by J. R. Holbert, C. Elliott, and B. Koehler.

50. Bound Water in Leaf Tissues of Heat-Resistant and Heat-Susceptible Inbred Strains of Yellow Dent Corn, by J. R. Holbert and R. C. Frye.

51. Differences in Size and Shape of Smut Balls of Two Physiologic Forms of Tilletia tritici, by C. S. Holton.

52. Inheritance of Chlamydospore Characteristics in Oat-Smut Fungi, by C. S. Holton.

53. Effect of Leaf Rust Infection on Water Economy and Growth of Two Wheat Varieties, by C. O. Johnston and E. C. Miller.

54. The Genetics of Sphacelotheca sorghi and S. cruenta, by H. A. Rodenhiser.

55. Pathogenicity of Certain Hybrids of Covered and Loose Smuts of Sorghum, by H. A. Rodenhiser and B. F. Barnes.

56. Association of Cercosporella Foot Rot with a Specific Ecological Area, by R. Sprague.

57. Comparative Studies of Two Loose Smuts of Barley, by V. F. Tapke. (Title only)

58. Leptosphaeria salvinii, the Ascigerous Stage of Sclerotium oryzae, by J. C. Tullis.

59. Inheritance of Awn Development in Sonora Wheat Crosses, by K. S. Quisenberry and J. A. Clark. Nov. 12 Jour. Amer. Soc. Agron.

60. Inheritance of Stem-Rust Reaction in Wheat, by J. A. Clark and H. B. Humphrey. Nov. 12 Jour. Amer. Soc. Agron.

RECENT PUBLICATIONS

The Relative Variability of Corn Crosses and Varieties. L. R. Arnold and M. T. Jenkins. Jour. Amer. Soc. Agron. 24(11): 868-871. November, 1932. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

The Cold Resistance of Pacific Coast Spring Wheats at Various Stages of Growth as Determined by Artificial Refrigeration. L. Foster Martin. Jour. Amer. Soc. Agron. 24(11): 871-880. November, 1932. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Oregon Agricultural Experiment Station.)

A Cytological Study of Heterothallism in Puccinia coronata. R. F. Allen. Jour. Agr. Research 45( ): 513-541, pls. 1-16. Nov. 1, 1932. (Cooperative investigations between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins) (Nov. 14).

Weather conditions in October were rather extreme. Exceptionally cold weather occurred the first week, when the temperature dropped to 40 degrees. The total precipitation was 5.45 inches.

While the precipitation was heavy, it did not interfere with harvest as much as would be expected, for the reason that it rained only 8 days, and 3.69 inches fell on 2 days.

Farm operations progressed satisfactorily during the month. The greater part of the rice crop has been threshed, and in the main under favorable conditions.

Work on the Station proceeded nicely. The rice harvest was completed before the end of the month and threshing was commenced on the 28th. The indications are that rice yields will be much higher than they were last season.

Dr. A. L. Smith left October 8 for Bloomington, Ill., to complete some corn-disease work that he had started before assuming his duties at this Station. He expects to be gone until about November 3.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)[Nov. 18] The drought which has prevailed throughout the past four months continued during the first half of November. Only 0.04 of an inch of rain was recorded from November 1 to 15. The maximum temperature was 85°. Minimum temperatures have been below normal. There was a light frost on the first day of the month, and on the 12th the first killing frost occurred. On the night of the 15th the cold wave that swept the Middle West was felt with considerable force in north Texas. From a maximum temperature during the day of 72° the temperature fell to 16° the following morning. This is the lowest temperature ever recorded for November at this Station. Very little damage was done by the freeze, as all tender plants had been killed previously.

Small grains have made very little growth so far and farmers are complaining because of lack of pasture. Nursery seedings that did not emerge when sown are still in dry ground, although they have been sown over five weeks. Grain was not injured by the freeze.

KANSAS

Southeastern Kansas Experiment Fields (I. K. Landon in Charge, Parsons, Kans.) (Nov. 8.) The following report of flax varietal tests conducted by the Kansas Agricultural Experiment Station near Moran, Allen County, and near Columbus, Cherokee County, was furnished by I. K. Landon, in charge of the several experiment fields in southeastern Kansas. The varieties were grown in four replications at Moran and in five replications at Columbus.

Variety	C.I. No.	Yield (Bu. per acre) Moran	Columbus	Av.
Linota	244	15.25	15.38	15.3
Winona	179	15.41	14.78	15.1
Redwing	320	13.58	14.54	14.1
Bison	389	13.05	13.67	13.4
Southwestern (Local)		12.60	12.96	12.8
Rio	280	12.94	12.20	12.6

NORTH DAKOTA

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (Nov. 15) Mild weather last week caused part of the snow to melt. This uncovered most of the winter-wheat nursery which had been covered since October 18. Practically no growth has taken place since the grain began emerging about October 16. The field plots of winter wheat were nearly all covered by snow in spite of warm weather. On November 13 and 14 about three inches of snow fell, giving added protection against the cold wave which followed. The temperature dropped to 17 degrees below zero this morning, this being the lowest temperature since last winter.

Field work at the Substation was nearly all finished when the blizzard struck on October 19. However, in the vicinity considerable corn was unhusked at that time. The snow remaining on the ground since the storm has interfered with saving some of this crop, although shocks have been stacked and some standing corn husked despite the snow.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith) [Nov.10]

Yields of proso varieties grown in triplicate 48.4th-acre plots at the Langdon Substation, Langdon, N. Dak., 1932

Variety	Yield (Bu. per acre) 1/	Variety	Yield (Bu. per acre) 1/
Black Vorenezh	24.5	Red Russian	19.0
Early Fortune	24.3	Hansen's White Siberian	17.1
Turghai	23.2	Yellow Manitoba	.9

1/ Based on 56 lbs. per bushel

IDAHO

Agricultural Experiment Station, Moscow (Wheat Improvement, V. H. Florell)(Nov.12)

Seeding of the cereal experiments in plots and nursery was finished on November 5, with the exception of the few odds and ends in the nursery that it may become necessary to hold over. Seeding was delayed until late in October on account of the shortage of rainfall. The drought was broken on October 12 and rain has fallen every few days since that date. The precipitation in October was 1.83 inches and in November, to date, 2.27 inches.

Temperatures have not been favorable for germination, so that none of the grain has emerged.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward)(Nov.7)

Yields of grain sorghums grown in quadruplicate single-row plots at the Agricultural Experiment Station, Logan, 1932

Variety	Av. Yield (Bu. per acre)	Variety	Av. Yield (Bu. per acre)
Freed sorgo	68.3	Black Amber sorgo	47.7
Dwarf hegari	77.4	Red Amber sorgo	83.3
Yellow kafir	78.0	Dakota Amber sorgo	44.5
Sooner milo	65.9	Dwarf Yellow milo	27.3
Tribune No. 12	64.8	Dwarf White durra	17.4
Dwarf Freed sorgo	67.7	Feterita	33.1
"Two Foot" milo	53.5	Dawn kafir	28.8
Weskan	52.3	Kodoc	48.7
		Wheatland milo	42.3

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

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Personnel (Nov.25-Dec.10) and Field Station (Nov.16-30) Issue

PERSONNEL ITEMS

Mr. O. S. Fisher attended the meetings of the International Hay and Grain Show and the conferences of the International Crop Improvement Association held in Chicago from November 29 to December 2.

MANUSCRIPTS SUBMITTED

61. Golden Cross Bantam Sweet Corn, Glenn M. Smith. Nov. 26. U. S. Dept. Agr. Circ.

62. Registration of Improved Wheat Varieties, VII, J. Allen Clark. Nov. 30. Jour. Amer. Soc. Agron.

63. Effect of Fertilizer on the Yield of Rice Grown in Pots, by Jenkin W. Jones. Jour. Amer. Soc. Agron.

64. Effect of Depth of Submergence on the Control of Barnyard Grass and the Yield of Rice Grown in Pots, by Jenkin W. Jones. Jour. Amer. Soc. Agron.

65. Inheritance of Stem Rust Reaction in Wheat. (Abs.) J. Allen Clark and H. B. Humphrey. Nov. 10. Jour. Amer. Soc. Agron.

66. Hybrid Vigor and Prepotency in Oats. (Abs.) F. A. Coffman and L. L. Davis. Nov. 17. Jour. Amer. Soc. Agron.

67. Factors Affecting the Distribution and Adaptation of Grain Sorghum Varieties. (Abs.) J. H. Martin. Nov. 17. Jour. Amer. Soc. Agron.

68. Physiology and Wheat Improvement. (Abs.) H. H. McKinney. Nov. 10. Jour. Amer. Soc. Agron.

69. The Inheritance of Awn Development in Sonora Wheat Crosses. (Abs.) K. S. Quisenberry and J. Allen Clark. Nov. 10. Jour. Amer. Soc. Agron.

70. Wheat Varieties for the Columbia River Basin of Oregon. (Abs.) D. E. Stephens, R. B. Webb, and J. F. Martin. Dec. 2. Oregon Sta. Bul.

71. Response of Corn Varieties to Different Levels of Fertility. (Abs.) G. H. Stringfield and R. M. Salter. Nov. 10. Jour. Amer. Soc. Agron.

RECENT PUBLICATIONS

A Cytological Study of Heterothallism in *Puccinia coronata*. Ruth F. Allen. Jour. Agr. Research 45(9): 513-541, illus. Nov. 1, 1932. (Cooperation between Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

Relation of the Semipermeable Membranes of the Wheat Kernel to Infection by *Gibberella saubinetii*. Grace Wineland Pugh, Helen Johann, and James G. Dickson. Jour. Agr. Research 45(10):609-626, illus. Nov. 15, 1932. (Cooperation between the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

AMERICAN SOCIETY OF AGRONOMY
Officers, 1932-33

President. Dr. M. A. McCall, Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.

Vice President. Prof. R. I. Throckmorton, Kansas State Agricultural College, Manhattan, Kans.

Chairman of the Crops Section. Dr. Merle T. Jenkins, Division of Cereal Crops and Diseases, stationed at Iowa Agricultural Experiment Station, Ames, Iowa.

Chairman of the Soils Section. Dr. Richard Bradfield, Ohio State University, Columbus, Ohio.

Secretary-Treasurer. Dr. P. E. Brown, Iowa State College, Ames, Iowa.

Editor. Prof. J. D. Luckett, Agricultural Experiment Station, Geneva, N.Y.

The following were elected Fellows of the American Society of Agronomy at the meeting held in Washington, D. C., in November, 1932:

Dr. S. C. Salmon, Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture.

Dr. Andrew Boss, University of Minnesota, St. Paul, Minn.
Dr. F. T. Shutt, Experimental Farms, Ottawa, Ontario.
Director M. J. Funchess, Agricultural Experiment Station, Auburn, Ala.
Dr. A. B. Beaumont, Massachusetts Agricultural College, Amherst, Mass.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)[Dec.2] The maximum temperature in November was 85°, minimum, 16°. The precipitation totaled 0.04 of an inch, the second lowest on record for November. This brings the deficiency since July 1 to 8.89 inches.

Growing conditions were unfavorable throughout the month. No rain has fallen since grain was sown early in October. Only a part of the grain has germinated and that which has emerged has made very little growth. Fall pastures are badly needed by stockmen. No injury was caused by the frost and freeze, as crops had all matured and fall gardens had dried up because of the drought.

Reports from Amarillo indicate that the nursery and varietal test at Price Memorial College have emerged to good stands but are in need of rain.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Nov.30) The weather in November was mild and dry and almost ideal for threshing grain sorghums. The sorghum plots have been threshed but yield weights have not yet been obtained as the grain must be fanned.

Maximum temperature in November, 78° on the 14th; minimum, 9° on the 16th.

Southern Great Plains Field Station, Woodward (Wheat Improvement Edmund Stephens)(Nov.30) The almost total lack of precipitation in November, following scant moisture in September and October, has not been favorable for winter wheat. Although lacking in vigor, the winter-wheat plots and nursery have been making some growth. The top soil is drying out rather rapidly and there probably will be little growth of secondary roots until rain falls.

COLORADO

United States Dry-Land Field Station, Akron (Wheat Improvement, J. J. Curtis) (Dec.1) This section has experienced unusually warm, balmy weather for the past ten days. The maximum temperature for November was 77°; minimum, 17°; precipitation, 0.19 of an inch.

Fall-sown wheat does not appear promising. Only the fallow wheat has emerged Stands are fair to good but very little growth has been made. Farmers in this section have sown a rather small acreage of wheat.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard) (Dec.1) The cold, windy days of the first half of November were in marked contrast to the warm Indian Summer days of the last week. However, freezing temperatures occurred every night during the month.

Wheat in the uniform winter-hardiness nursery has not as yet been killed to the ground by freezing temperatures. Hungarian partridges and ring-necked pheasants have taken a liking to the ungerminated and partially germinated kernels in the nursery. Nearly every row has several to many small holes that the birds have dug with their beaks in their search for wheat kernels. No injury to plants above ground is evident as yet.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)(Dec.2) The severe winter weather of the last half of October and the first half of November was followed by a period of exceptionally warm weather for this season, from November 19 to date. Minimum temperature in November, -7° on November 14°, maximum, 57° on November 24.

The precipitation from October 16 to November 18, inclusive, was 1.91 inches, a considerable part of which was in the form of snow or sleet. The ground was covered with snow during most of this time. The snow disappeared at the beginning of the warm period from November 19 to 30 and the only precipitation recorded during this time was 0.06 of an inch of rain on November 21.

Threshing of flax single-plant selection and hybrid material was completed November 25. Tabulation of data from the experiments is nearly completed.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (Nov.30) Temperatures in November varied from -16° on the 15th to 56° on the 27th. Very cold weather prevailed for a few days in the middle of the month, followed by extremely mild weather during the past 10 days. The snow has disappeared except for the remnants of drifts, and there is but little frost remaining in the ground.

The winter wheat in the nursery has grown a little during the past 10 days; it is now about an inch high and the stand is fairly uniform. Field plots of winter wheat in standing corn are still partly covered with snow and the stand, where visible, is thin and irregular. In both fields the surface soil is saturated with moisture from melting snow.

The weather is now very favorable for such field work as was interrupted by the blizzard and subsequent cold weather in October.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(Dec.1) The weather in November has been colder and wetter than usual. The precipitation, all in the form of snow, totaled 1.26 inches, or 50 per cent above normal. The mean temperature was 17.6°, or about 8° colder than the average; minimum, -16°, maximum, 44°.

The uniform winter hardiness nursery is alive under three or four inches of snow.

Agronomic data for plots and yield-test nurseries have been tabulated and the results from rust-reaction inheritance studies are being calculated and studied.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (Dec.1) The weather in November was very mild, except for a storm from the 8th to the 10th, when considerable snow fell. This was followed by relatively low temperatures, 2° having been recorded on the 13th. Moisture is needed for winter wheat to be in the best condition.

Temperatures: Maximum 64° on the 29th; minimum, 2° on the 13th; precipitation; 0.51 of an inch.

Yields of barley varieties grown at the Judith Basin Branch Station, Moccasin, Mont., 1932

Variety	C. I. No.	Yield (Bu.per acre)
Atlas	4118	28.6
Composite Cross	4116	27.6
Mechanical Mixture	4115	26.5
Horn	926	25.9
Trebi	936	25.4
Arequipa	1256	25.3
Coast	690	24.3
Hannchen sel.	5462	24.0
Composite Cross	5461	22.7
Hannchen	531	18.1
Himalaya	620	16.7

Yields of flax varieties grown at the Judith Basin Branch Station, Moccasin, Mont., 1932

Variety	C. I. No.	Yield (Bu.per acre)
Newland	188	9.2
Red Wing	499	8.0
Sib. No. 206	473	7.7
Linota	244	7.3
Sel. 64-6	191	6.5
Bison	389	6.3
N. D. R. 114	13	6.3
Rio	280	4.9
Sel. 167-254	475	4.6

IDAHO

Agricultural Experiment Station, Moscow (Wheat Improvement, V. H. Florell) (Nov. 12) Grain of very good quality was produced in 1932. It is interesting to note that yields of spring-wheat varieties slightly exceeded or equaled the yields of fall-sown varieties.

Yields of spring-wheat varieties grown in three 40th-acre plots at the Agricultural Experiment Station, Moscow, Idaho, 1932

Variety	C.I.No.	Yield (Bu.per A)	Variety	C.I.No.	Yield(Bu.perA)
Onas	6661	66.8	Marquis [illegible].No.70	---	43.5
Jenkin	5177	61.0	White Federation	4981	43.4
Federation	4374	57.3	Red Bobs	6255	42.7
Federation	4374	53.5	Supreme	8026	42.5
Bunyip	5125	52.4	Red Bobs,sel.dark	--	42.2
Little Club	4066	52.2	Marquis	4158	42.2
Pacific Bluestem	4067	50.1	Alberta No.222	6854	42.1
Baart	1697	47.8	Marquis	3276	40.6

Variety	C.I.No.	Yield(Bu.per A)	Variety	C.I.No.	Yield(Bu.per A)
Red Bobs,sel.light	--	46.2	Hard Federation	4733	38.5
Regen.Defiance	3703	46.1	Sonora Altar x Cedar	--	37.3
Pusa 4	8899	45.8	Quality	6607	32.0
Baart	1697	44.9	Reward	8182	29.9

Yields of winter-wheat varieties grown in three 40th-acre plots at the Agricultural Experiment Station, Moscow, Idaho, 1932

Variety	C.I.No.	Yield(Bu.per A)	Variety	C.I.No.	Yield(Bu.per A)
Jenkin	5177	53.1	Red Russian	4222	45.3
P-1068 x Preston	11452	51.0	Turkey	1571	44.7
Albit	8275	50.7	Kharkof	1442	43.0
Hybrid 128	4512	48.8	Golden	10063	42.1
Fortyfold sel.54	10064	48.0	Triplet	5408	41.6
Turkey sel.(3055A)	7366	47.2	Sherman	4430	41.4
Mosida	6688	46.9	Fortyfold x Fed.	8247	41.3
Turkey x Florence	10080	46.5	Red Russian, sel. white	--	41.3
			Ridit	6703	37.9

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward) (Nov.30) The weather in November was uniformly warm. The mean temperature was 38°.

Winter wheat is growing nicely wherever there was sufficient moisture for germination. A few light showers and occasional snows have fallen but each time the clearup has brought warm weather. The total precipitation in November was 0.8 of an inch and the evaporation was the same.

There is very little snow stored in the mountains thus far as there has been little meisture fall since August. Some of the spring flowering shrubs are commencing to bloom as a result of the warm weather.

CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, L. L. Davis)(Nov.30) Weather conditions this fall were ideal for harvesting and threshing the California rice crop. The average acre yield is somewhat below that of last year, which was estimated at 3,100 pounds per acre. However, the quality based on lots already milled is somewhat better than last year. The farmers are recoiving only from 80 to 85 cents per hundred pounds.

The rainfall for September, October, and November totals 0.50 of an inch. The average rainfall for this period, based on a 19-year average, is 3.89 inches.

The following table shows the average yields of rice varieties grown in triplicated 66th-acre plots at the Biggs Rice Field Station, Biggs, Calif., 1932

Variety	Yield(Lbs.per A)	Variety	Yield(Lbs.per A)
Caloro x Colusa, plant 7-1	5,280	Selection 289	4,708
Early Wataribune	5,236	Colusa	4,642
Selection 175	5,104	C. I. 5758	4,554
Selection 138	5,060	Selection 127	4,378
Caloro x Colusa, plant 14	5,016	C. I. 5684	4,356
Caloro x Colusa, plant 12	4,884	Butte x Colusa, plant 44	4,290
Selection 357	4,884	C. I. 5715	4,268
Selection 233	4,884	C. I. 5747	4,158
Caloro (average 4 checks)	4,868	Caloro x Lady Wright 241 B 21-3-1	3,916
Selection 361	4,818	Caloro x Lady Wright 241 B 5-30	3,828
Selection 176	4,796	Prolific	3,718
Onsen	4,774	C.I. 5698	3,674
Selection 287	4,752	Caloro x Lady Wright 241 B 21-2	3,388